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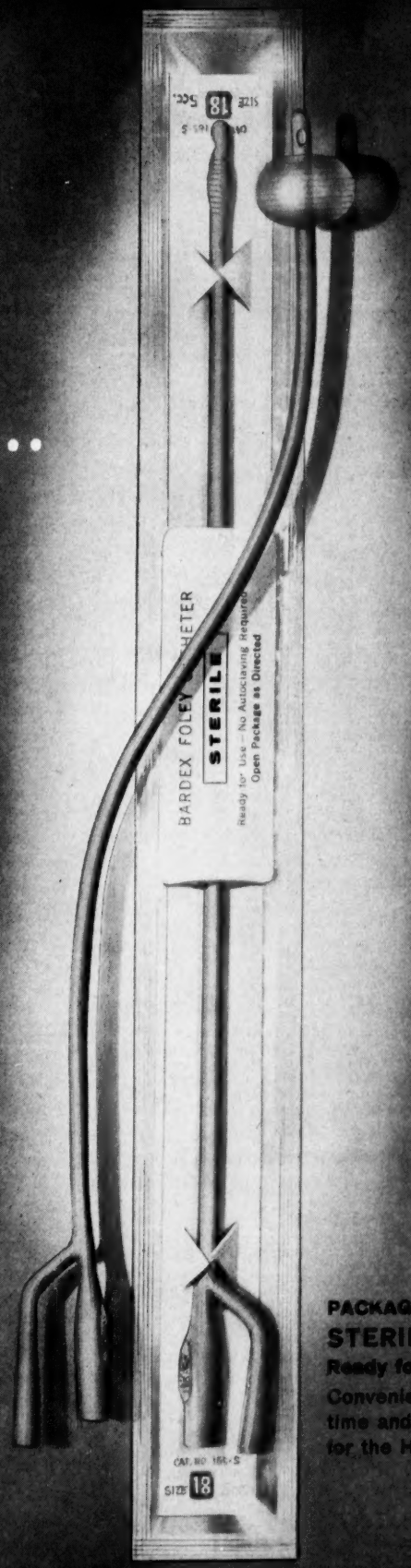

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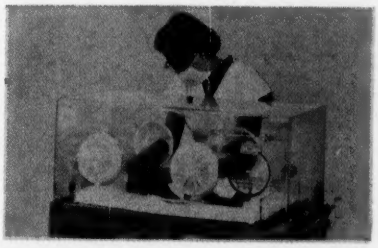

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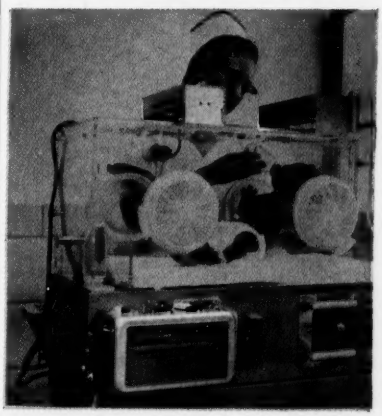

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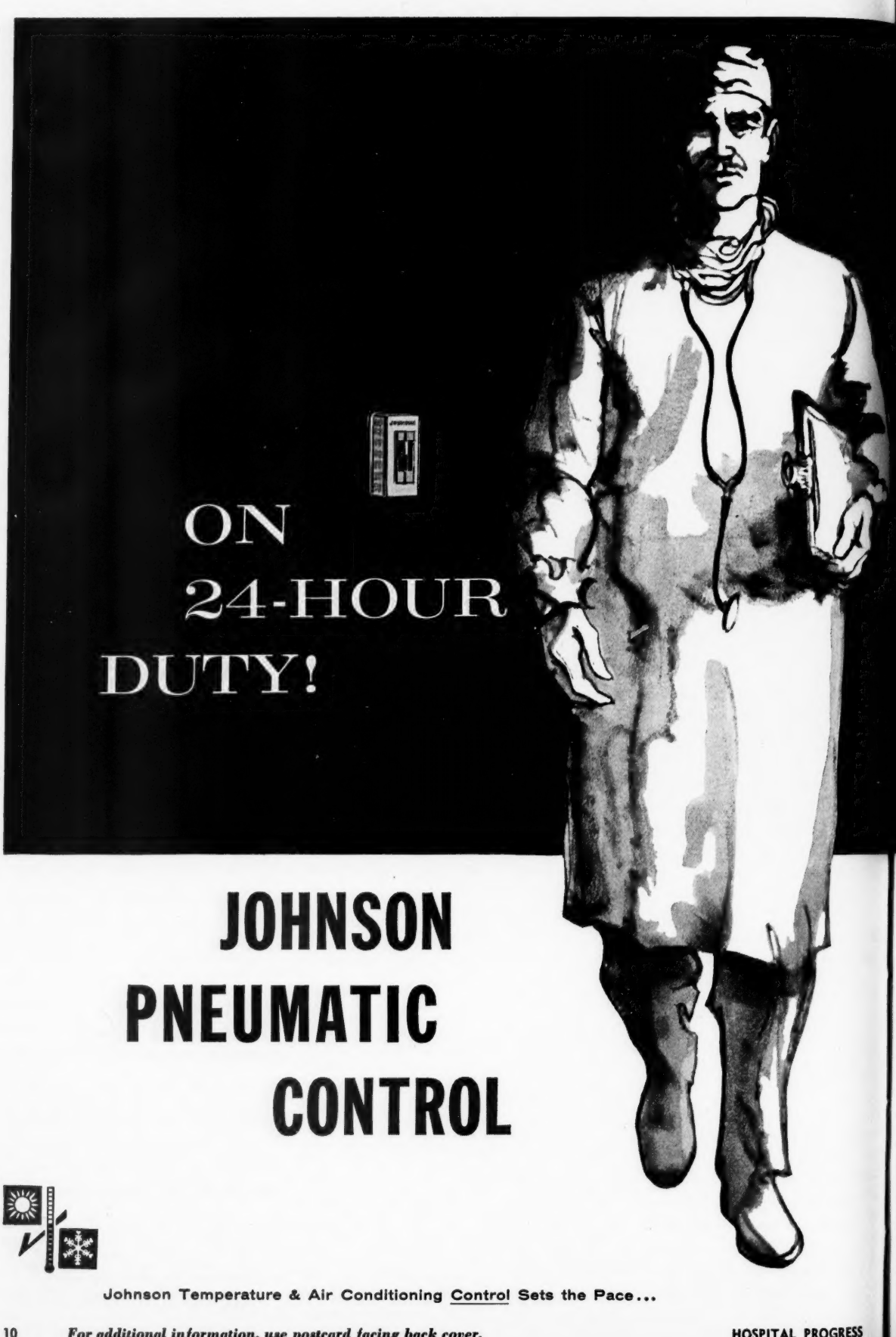

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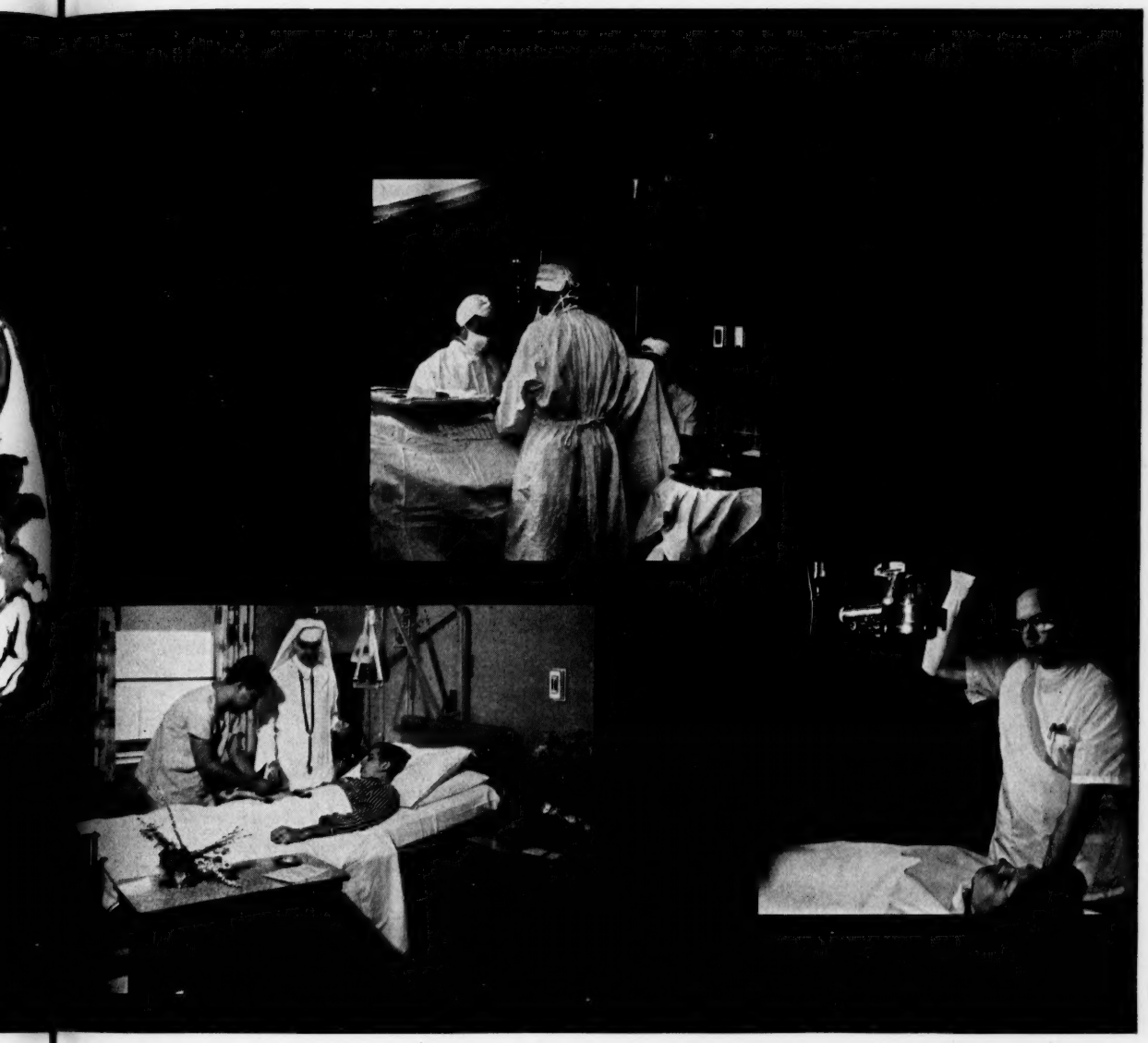

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Housekeeping Needs *in Construction*

by ANNE J. VESTAL
University of Florida Hospitals
Gainesville, Fla.

THEORETICALLY, the design and planning of new hospitals should eliminate the faults of older hospitals. Unfortunately many of these faulty designs are being included in new hospital planning. Apparently hospital planners have not recognized design problems. For example, hospital elevator cabs have remained standard size, but hospital beds have not. More pertinent to housekeeping is elevator flooring which forces the elevators to be taken out of service daily or nightly for cleaning. Why has no one yet installed removable mats? How simple it would be to flip out the dirt-encrusted mat and slip in a clean mat. This would take only a few seconds and allow the cab to be released almost immediately for service.

Corridor obstruction is another housekeeping problem which can be alleviated by proper design. Recessed wall-mounted drinking fountains can be cleaned much more efficiently than water coolers and they do not obstruct the corridors. Other housekeeping obstructions such as wheel chairs, stretchers, porto-lifts, scales, and walkers, for which no storage space has been provided except the corridors, should also be considered by designers.

Inadequate storage space has precipitated another housekeeping problem. Storage space for linens was eliminated when rolling linen trucks were developed. But should it have been? Those little alcoves in the halls where linen trucks are located do not provide security for linens; they do not afford protection from contamination; and certainly they do not yield space for storing pillows, extra blankets, binders of various types or slings for which there is no space on the linen truck. There is little storage space for trunks, suitcases and the sometimes quite large wardrobes of the long term patients in chronic divisions or therapeutic communities. The smallest accommodations are provided for these things in the areas where they are most needed. Any housekeeper can name more areas needing more space.

Adequate space for a medicine room is another need. Dispensing areas should not be built in the nurses' station. It is not fair to a nurse to ask her to perform her functions, which require her utmost concentration, in the midst of distractions such as are present in all nurses' stations. Housekeeping personnel complicate the problem further by repetitious cleaning necessitated by spilling of powders, pills, liquids, dyes, etc., on the heavily trafficked floor. The nurses' station has been crowded even further by the addition of purse lockers. The idea was good but the lockers are too small for even the smallest handbag.

Housekeepers have protested against the too-small locker room, the too-narrow lockers, flat-topped and off-the-floor lockers that create innumerable cleaning problems. These areas become unwelcome storage space for dirt, packages, old shoes, and umbrellas.

Square cornered baseboards constitute another housekeeping problem which could be alleviated by proper design. Nurses and maids are taught good housekeeping habits, but it is impossible to carry them out in small patient rooms constructed with square cornered baseboards. Hospitals are still being built without utilization of this simple aid to cleanliness—coved and rounded baseboards.

Alert manufacturers are developing improved tools for housekeeping personnel. The portable vacuum has proved to be a great boon in keeping stairways clean. But since most hospitals are built without electrical outlets on stairwells, the personnel are forced to use long extension cords brought to a stairway through hall doors that must be propped open. Many halls still do not have the proper electrical outlets so that floor machines may be used safely. Instead the personnel are forced to use adapters which many fire departments have outlawed. In addition to poorly spaced electrical outlets in halls, many halls have doorways which are too narrow for the wide bulky items that must be hauled through them.

Much is being written regarding new architectural patterns for hospitals. The author's plea is for concern for the little things—the details that make the difference between mediocrity and excellence. The examples cited and the housekeeping areas discussed have illustrated the need for proper planning and attention to design details. As long as hospital planners recognize design faults, they have the responsibiilty for planning more efficient hospital facilities. They must never be lulled into complacency. They must never lose the faculty for self-criticism and ever strive to build better facilities. ★

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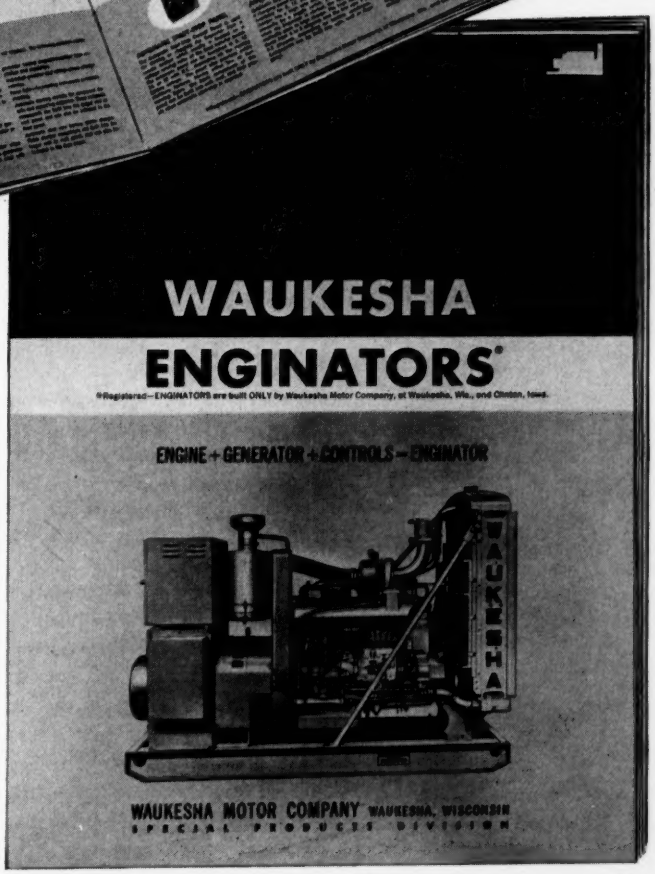
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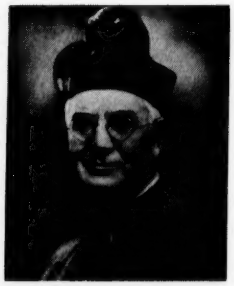
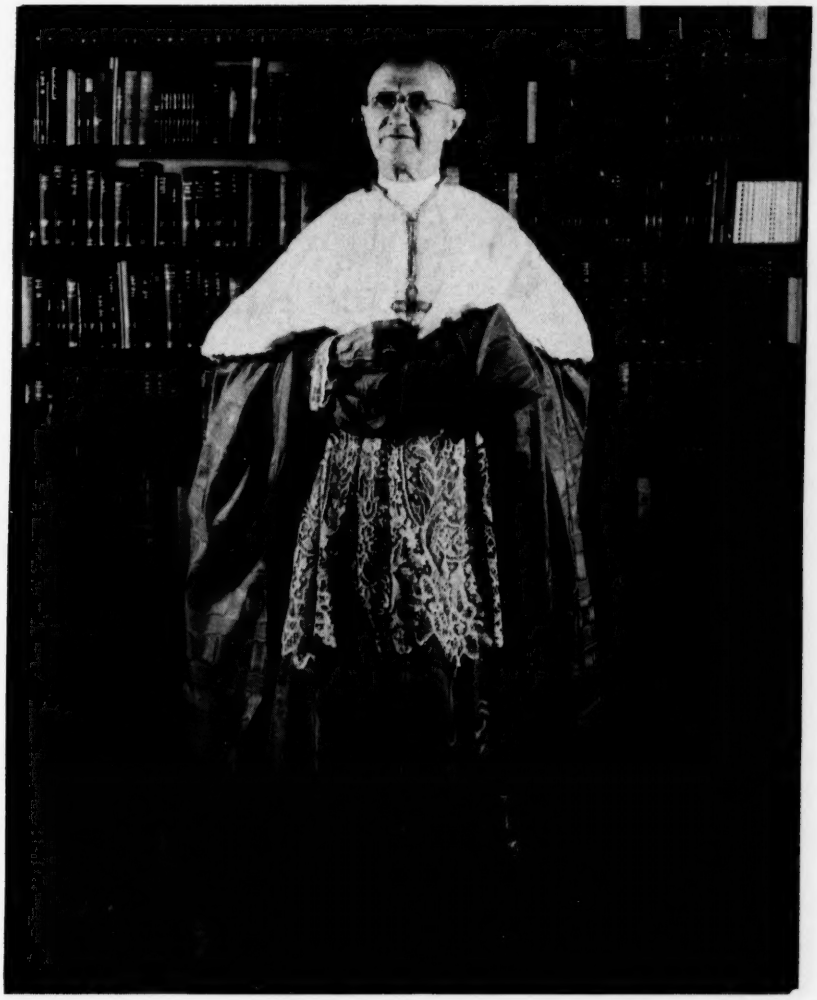


RT. REV. MSGR. MAURICE F. GRIFFIN, P.A., a past-president of the Association, died Jan. 25, 1961, at the age of 80 after more than 52 years in the priesthood. He was buried from St. Philomena Church, Cleveland, Ohio, of which he had been pastor since 1928. Monsignor Griffin had been very active in the reorganization of C.H.A. in the 1940s which resulted in the establishment of the Administrative Board and the appointment of a full-time Executive Director. He was also a trustee of the American Hospital Association for 27 years and helped establish the permanent A.H.A. headquarters in Chicago. In 1943, he was given the A.H.A. Award of Merit for his work in the Association. He was a founder and president of the Ohio Hospital Association and served for 30 years as its treasurer. He held several important posts in the Diocese of Cleveland and was active in local and state public affairs. He had been in ill health for several years and died in Mercy Hospital, Miami, Fla.

His Excellency, the Most Reverend Karl J. Alter, Archbishop of Cincinnati, first Episcopal Chairman of the Administrative Board of C.H.A. and currently Chairman of the Administrative Board of N.C.W.C., gave the final Absolution. Among those representing the Association at the funeral were Rev. John J. Flanagan, S.J., executive director, M. R. Kneifl, K.S.G., consultant, Rev. John J. Humensky, immediate past-president, and Past-President Rt. Rev. Msgr. Robert Maher.

Archbishop Edward F. Hoban presided at the Pontifical Requiem Mass, which was celebrated by Auxiliary Bishop Floyd L. Begin. In his sermon, the then Auxiliary Bishop John J. Krol reviewed the wide range of Msgr. Griffin's accomplishments and said, "He related all things to God, and with the deep conviction that death is the end of preparation and the beginning of life's fulfillment, he spent his life preparing for God." In 1941 a portrait of Msgr. Griffin was unveiled in the Bacon Memorial Library at the headquarters of A.H.A. On that occasion, Father Alphonse Schwitalla said, "Monsignor Griffin's prerogative makes the spiritual progress of the hospital a living reality . . . we honor ourselves rather than honor him . . . in bringing honor to Monsignor Griffin." And in his presentation speech Dr. Malcolm MacEachern noted, "Truly we cannot honor this man half as much as he has honored himself by a life of quiet, unassuming beneficience; of self-sacrificing service; of wise and kind counsel; of firm but tolerant leadership." In typical fashion, the monsignor responded with a gentle reproof to his fellow trustees for having approved the commission of the portrait. "I have frequently felt it necessary to oppose very vigorously proposals brought before the Board, and I tell you if I had been present on that occasion, I would have been a veritable devil's advocate against it."

We recommend his soul to the prayers of our members, who have benefited in ways too great measure from his dedicated service.



St. Louis Review Photo

ON JAN. 19, 1961 in Rome's majestic St. Peter's Basilica, His Eminence Joseph Cardinal Ritter, Archbishop of St. Louis, received the red hat signifying his new rank as a member of the Sacred College of Cardinals. For the 68-year-old prelate, the Solemn Consistory marked a fitting climax to 43 years of complete dedication and service to his priestly office.

Quiet yet ebullient, humble yet firm, a harvester of souls and an architect of progress, Cardinal Ritter, through his work on behalf of interracial justice, education, the lay apostolate, the missions and lay participation in the liturgy, had long since earned for himself a princely stature in the hearts of those he serves. His now famous 1947 pastoral on integration and his assignment of six diocesan priests to establish the first such mission parishes in South America witness his abiding concern for the Church Universal. His construction of 38 parish plants, numerous secondary schools and other institutions—including the Cardinal Glennon Memorial Hospital for Children—within the past decade readily attests his leadership toward the future.

Born July 20, 1892 in New Albany, Ind., Cardinal Ritter was the fourth of six children. He attended St. Meinrad Seminary and was ordained to the priesthood on May 30, 1917 by Bishop Joseph Chartrand of Indianapolis. Although chosen to continue graduate studies in Rome, he was requested to remain in Indianapolis, where he was appointed Cathedral rector seven years later at the age of 32. In 1933 he was named auxiliary to Bishop Chartrand and, when that prelate died the following year, was appointed his successor. He was installed as first Archbishop of Indianapolis in December of 1944, and a year and a half later was named by Pope Pius XII to be Archbishop of St. Louis.

On Dec. 10, 1960 Pope John XXIII announced the Archbishop's elevation to the Cardinalate. At a press conference six days later, the new Cardinal-elect expressed his gratitude to the Holy Father and called upon the "wonderful Catholic people . . . to help me by their prayers and coöperation in meeting the challenges which lie ahead." The Catholic Hospital Association and its members everywhere join those prayers with heartfelt assurance.

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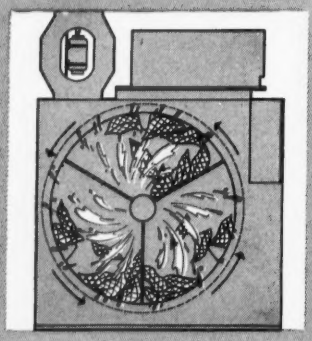

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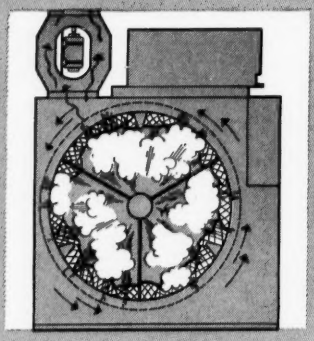

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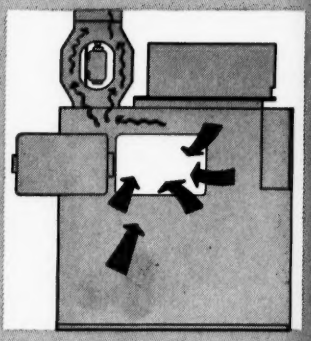

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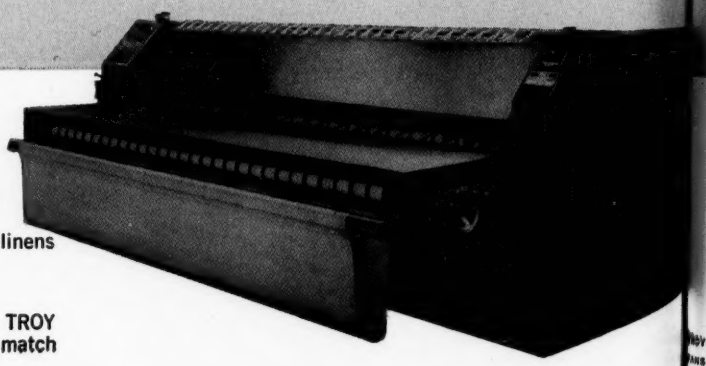

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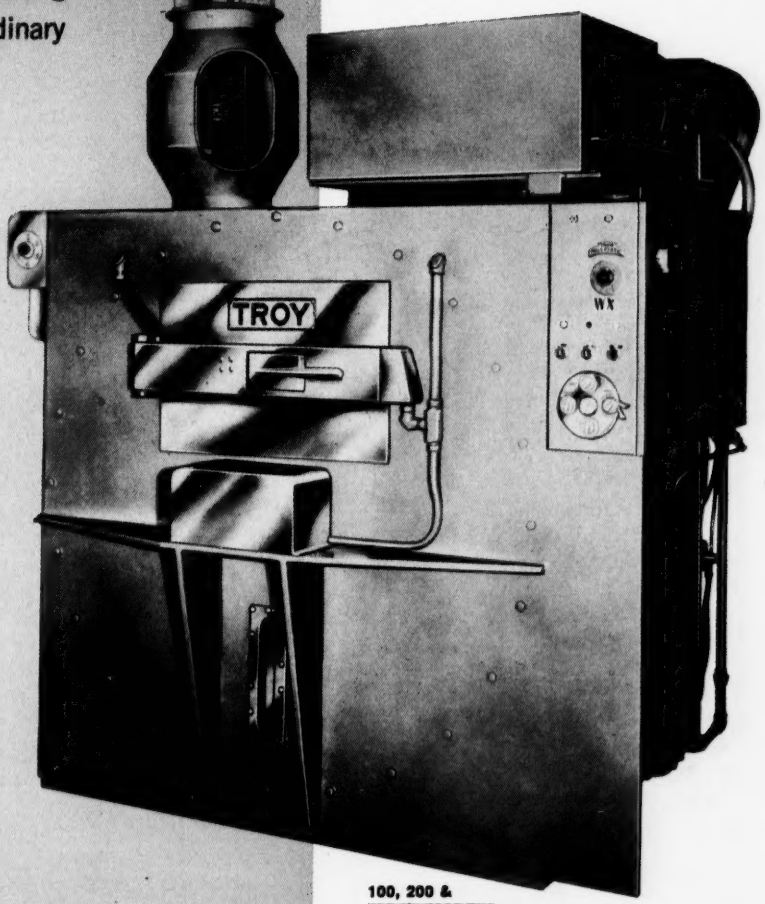

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CANON LAW

The Location of Hospital Chapels

by **REV. JAMES I. O'CONNOR, S.J.**
Professor of Canon Law
West Baden Springs (Ind.) College

THE LOCATION OF THE CHAPEL in construction plans of hospitals or other residence halls must be planned according to the directives found in the *Code of Canon Law.*

Some definitions will help in planning the location of the chapel. A *church* is a sacred building dedicated to divine worship with the main purpose of serving all the faithful in the public exercise of divine worship (Canon 1161). An *oratory* or *chapel* is a place destined for divine worship but its main purpose is not that of serving all the faithful in the public exercise of their religion (Canon 1188, 1). Hence, a church, parochial or not, differs from a chapel by reason of the kind of service provided the faithful: a church is for all the faithful; a chapel is not, it is primarily for only part of the faithful.

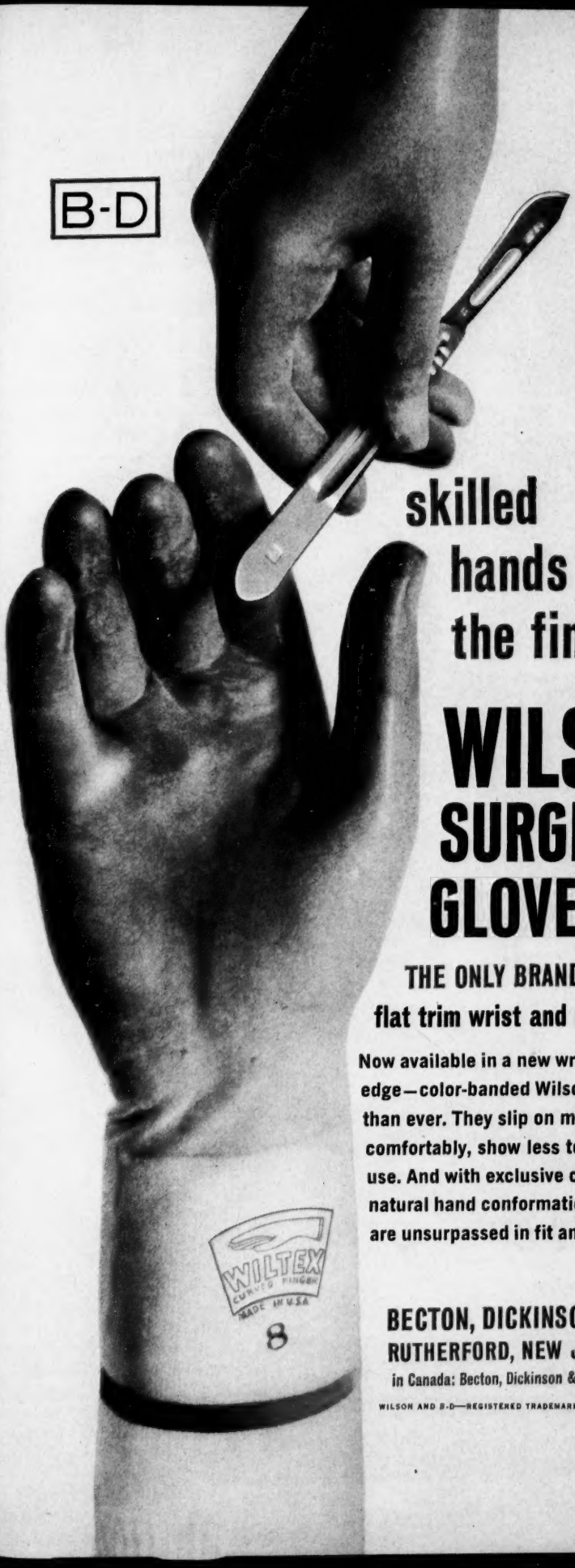
Chapels are of different classifications. A *public* chapel is built mainly for the convenience of a definite community or even of private individuals but in such wise that all the faithful have a right in law to enter it at least at the time of divine services. A *semi-public* chapel is built for the convenience of a certain community or of a group of the faithful who assemble there but it is not freely accessible to others. A *private* or *domestic* chapel is erected in a private dwelling for the convenience only of a definite family or a private person (Canon 1188, 2).

Hospitals, colleges, universities, convents and monasteries ordinarily do not have a church or a public oratory or chapel; a few, however, do. Most of such institutions have a semi-public oratory or chapel. Occasionally the chapel of a hospital, residence or religious community is referred to as the "domestic chapel" in the sense that in this chapel the common exercises of piety take place. While such colloquial usage is fairly common, such a chapel is not a domestic chapel canonically and, as a result, is not governed by the canon law for domestic chapels.

Since some few institutions have churches or public oratories, a few remarks about them may be in place. Public oratories are governed by the same law which applies to churches (Canon 1191, 1). The canon on churches states: "No door or window of a church should open on to houses of the laity; if there is any space under the pavement of the church or above the church, it must not be used for purely profane purposes" (Canon 1164, 2). Examples of purely profane purposes are: storerooms for things not pertaining to church services, e.g., fruit cellar, storage of oxygen tanks, or other hospital or school equipment; a theatre; a dormitory. Space below and above the church or public oratory may be put to such uses as the following: heating plant for the church or oratory, including coal bins and oil tanks, if such fuel is used by the plant; the library of the institution; classrooms; meeting rooms for institutional organizations, e.g., chapter room, sodality, Legion of Mary, Holy Name Society, etc.; storage of wine, candles, vestments, etc., used for divine services (J.A. Abbo and J. D. Hannan: *The Sacred Canons* [St. Louis: Herder, 1957], rev. ed., vol. 2, p. 438; M. a Coronata: *Institutiones Iuris Canonici* [Turin: Marietti, 1939], ed. 2, vol. 2, n. 733; H. Jones: *Commentarium in Codicem Iuris Canonici* [Paderborn: Schoningh, 1954, vol. 2, p. 386]).

In the ordinary case of a hospital or school, the chapel is a semi-public oratory because it is erected for the benefit of the hospital convent, personnel and patients and other people have no right in law to enter it. Such a chapel or oratory is not under restrictions as severe as those for churches and public oratories. The space, if any, above and below a semi-public chapel may, in general, be used for any good purpose. Therefore, storage rooms of any kind, operating rooms, etc., may be located above or below the chapel as long as they do not detract from the services or from the atmosphere of recollection and prayer which should characterize a chapel. However, there is one notable restriction as to what may be located *above* even a semi-public chapel. Sleeping quarters, whether they be a private or semi-private room, a ward or a dormitory may not be located above even a semi-public chapel. This canon governs a room which is *regularly* used as sleeping quarters; it does not apply to a room used as a bedroom in an emergency case.

The restriction does not govern the chapel as such but the altar or altars in the chapel. The law does not prohibit sleeping quarters above the chapel but above the altar at which Mass is celebrated or on which the Blessed Sacrament is reserved. Moreover, if the sleeping quarters are not *immediately* above the altar, there is no prohibition against locating the altar in that place. For example, if there is an ambulatory, classroom, laboratory, operating room, etc., immediately above the altar and above the ambulatory, etc., are the sleeping quarters, the chapel and altar may be located in such a place (Sacred Congregation of Rites: *Decreta Authentica,* nn. 2812, 3460



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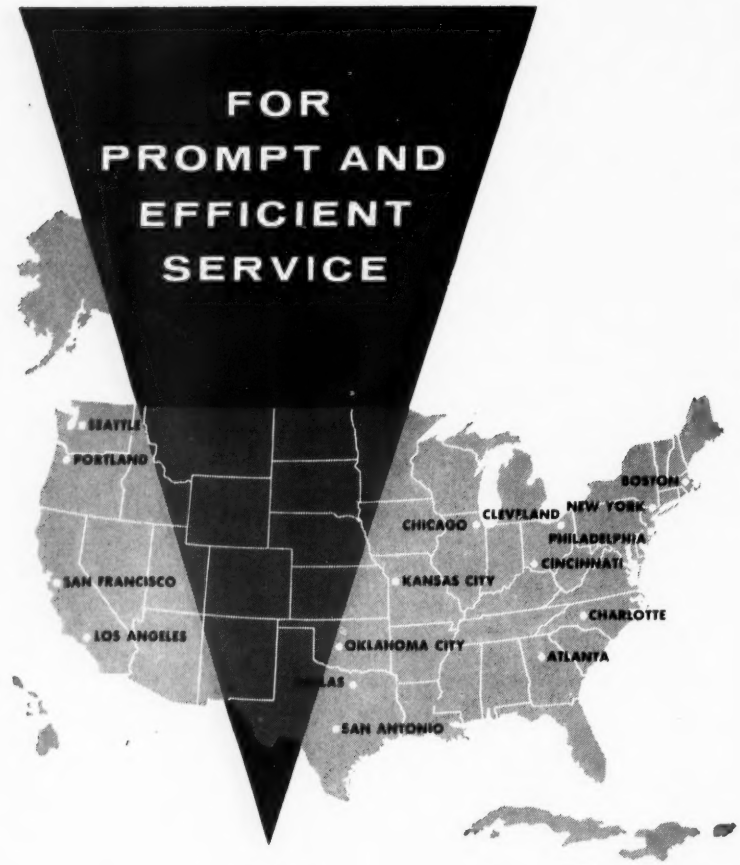

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ad I). The fact that religious themselves and not lay persons will use the sleeping quarters does not excuse from this prohibition (S.C.R.: *Decr. Auth.*, n. 756). The same general response was made in 1908 *(Decr. Auth.*, n. 4213 *ad* III) confirming both decree 756, passed in 1641, and decree 3525 *ad* II, passed in 1880. There has been no change in this legislation in subsequent years. In decree 3523 *ad* II, a dispensation from the general law was given to a particular convent of sisters provided that a baldachino was placed above the altar, thus, as it were, creating a "neutral" space between the area over the altar and the floor on which the sleeping quarters were set. However, this permission to use a baldachino is not a general permission but granted only to that one convent because of some special circumstance. Decree 4213 *ad* III explicitly denied that a baldachino suffices apart from a dispensation.

For one or another reason, it may not be possible or convenient to create "neutral" space above the altar of the chapel so as to separate the altar space from the sleeping quarters. There are some other ways of solving the problem. It must be remembered that the *altar* may not be immediately below sleeping quarters. Consequently, if an apse or its equivalent is built out beyond the regular wall of the building and the altar is erected in such an apse, the altar is not immediately below the sleeping quarters, even though the body of the chapel and, perhaps, the outer part of the sanctuary may be. If the sleeping quarters have a corridor or a parlor or lounge or other neutral area and it is sufficiently large to extend over all the altar below, the altar may be erected under the corridor, parlor, lounge, etc., since the sleeping quarters are not then directly over the altar.

The limitation involving sleeping quarters does not apply to shrines or to altars used only as shrines, e.g., shrines of Lourdes, Fatima, Little Flower, Sacred Heart, etc. These may be located immediately below sleeping quarters.

In summary, any altar at which Mass is celebrated or on which the Blessed Sacrament is reserved may not be located immediately below any quarters regularly uesd for sleeping. Therefore, any arrangement whereby the regular sleeping quarters are not immediately above such an altar permits the location of chapel and altar in that area. ★

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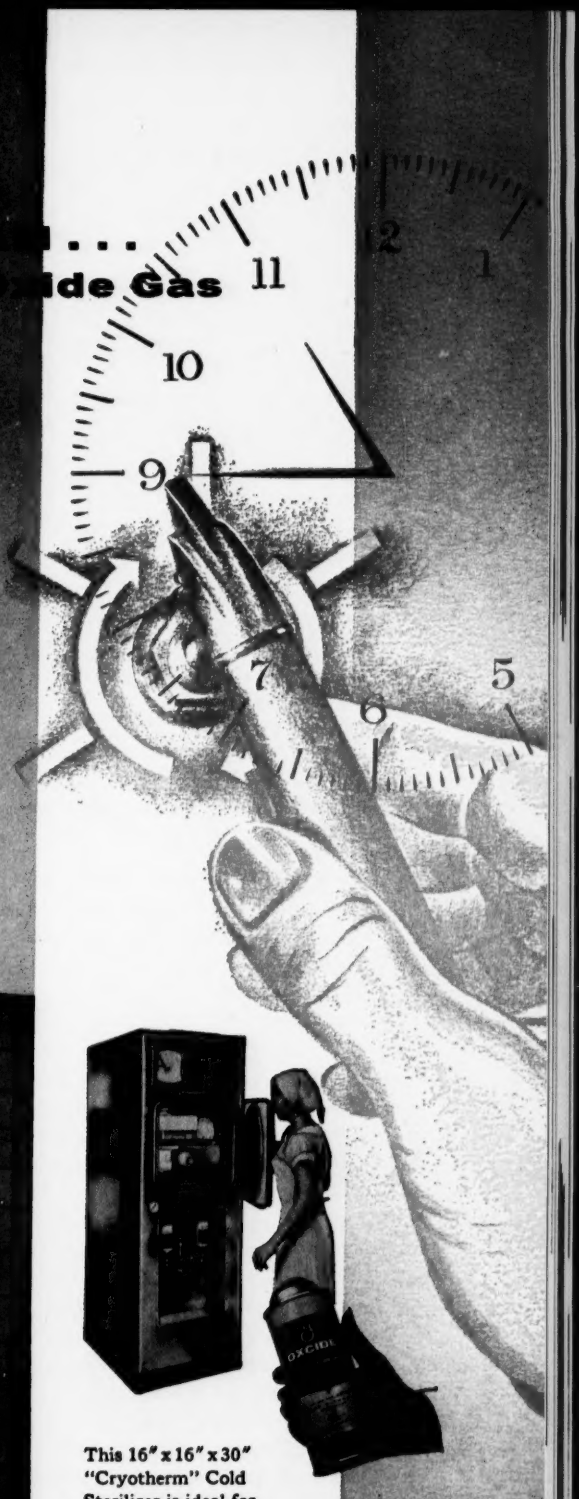

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A STATEMENT

The Role

by REV. J. J. FLANAGAN, S.J.

Reprinted From the *Journal of the American Association of Medical Record Librarians*, October 1960.

THE MODERN hospital has become an intricate maze of many specialized people and departments. Each person and each department is important to the total care program setup to carry out the objectives of the hospital, i.e., the comprehensive care of the patients.

Patient welfare depends greatly on the selection, the preparation, and the professional alertness of the personnel in each department. Boards of trustees and administrators need to appreciate the importance of all units. The result otherwise can be a weakened link in the entire chain of service. In turn, each department head must envision the importance of his role and that of his staff in total patient care. Each must feel a moral responsibility to give service which is of the highest quality, delivered as economically and as effectually as possible.

The success of medical record departments has been due to this sense of responsibility on the part of thousands of medical record librarians who have served so faithfully in American hospitals. Frequently, the importance of their work has not been recognized by people who make and carry out hospital policy. In many instances medical record librarians have had to fight for status in order to achieve results in an environment of misunderstanding and indifference. This has been the history of nearly all specialized hospital services, and of most professions in other fields.

Today, in the modern hosptial, the medical record librarian is becoming more widely acknowledged as necessary to the daily functioning of the institution, her work carrying into future research as well. Looking ahead, we can easily see that more and heavier demands will be made on medical record librarians. We have every confidence that you will meet the professional challenges as they arise. The past record is a guarantee of this.

There is one challenge which is somewhat extrinsic to the essential work of the medical record librarian, but it is of equal importance in the hospital and to the patient. It is the consciousness that the medical record department and all its personnel are a part of a larger organization and share and contribute to the objective of the hospital. This objective is to serve the needs of sick people and the health of the community as a whole.

Departmental preoccupation and departmental pride have a tendency to build up departmental autonomy. The very struggle for recognition and improvement can engender a spirit of independence. It is well for us to recall from time to time that no unit in the hospital can have an independent existence. It cannot stand by itself: Alone and apart from the institution there is no reason for its existence. Each department is given its justification and professional dignity from sharing the responsibility to which the hospital, by its very nature, is committed.

In the modern record librarian humility and an unselfish spirit of service are as important as professional competence. There is no room for builders of independent kingdoms in the hospital, which must be more than a federation of independent principalities. It is a difficult organizational and administrative task to guide the hospital in an efficient, patient-centered course. It is impossible if the various departments do not consciously strive to rise above petty and selfish departmental considerations. Failure to do this can be as disastrous as professional incompetence and can neutralize the value of years of education and experience.

Education costs money. Experience takes time and work. Coöperation costs nothing. The future of hospitals and the welfare of patients depend very much on this spirit of unselfish coöperation. ★

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A REACTION

by A SISTER M.R.L.

BEFORE BRISTLING at Father Flanagan's indictment of medical record librarians as builders of independent kingdoms, let us be quite sure exactly what Father is saying. Nowhere in the article does the author make the accusation that we *have* built up a departmental autonomy. Nowhere does he say that we *have* proved unable to rise above petty and selfish departmental considerations. Nowhere does he say that our lack of coöperation in the over-all objective of the hospital *has* neutralized the value of our years of education and experience. Quite the contrary. We have served faithfully, Father says, and the success of our departments has been due to this sense of responsibility. Our past record, Father says, is a guarantee that we will meet future challenges as they arise.

Still, implicit in the article are overtones which are not lost on the perhaps too sensitive ears of M.R.L.'s. Possibly this is a case of wearing the shoe if it fits our professional foot.

Certainly the note of warning Father sounds here is timely. Every department in the modern hospital faces this same challenge. However, by the very nature of things, it would seem that the medical record department is particularly threatened by this danger of departmental over-preoccupation and emphasis.

The awareness of coöperating in direct patient care is relatively constant and obvious for the diagnostic, therapeutic and nursing service departments of the hospital. There is little or no need for these departments to convince either themselves, the medical staff, hospital administration or the general public that they are essential members of the patient-care team. The medical record department, on the other hand, is one of the youngest of the paramedical services, having emerged only as something of a necessary evil. As Father Flanagan points out, many record librarians have had to fight for status in the face of misunderstanding and indifference. In many instances this fight continues, as do the misunderstandings and indifference. Our determination, in these instances, to convince administration, staff, other departments and the public of our necessity could easily breed a compensatory exaggerated concept of our own importance. Constructive coöperation toward any goal becomes impossible among individuals who are on the defensive and persist in provincial attitudes.

Where the pendulum has begun to swing the other way, equally great danger lies. Trends in standardization have put new emphasis on the medical record department and have given us new stature in administration's eyes. While improved patient care is the avowed objective of compliance with standards, it is conceivable that this objective might slip from our awareness as we attempt a too rigid conformity to standards. Accreditation has given us "'big stick" measures, but like nuclear weapons these measures are dangerous. No goal short of quality patient care warrants their use. Perfectionism could conceivably hide behind the euphemism of patient care.

Only by a continual awareness of our *raison d'être* as contributing members of the health team can we as a profession steer a safe course between this new Scylla and Charbydis—the destructive, defensive attitude of the paranoid on the one hand, the equally destructive pressuring of the perfectionist on the other. These attitudes are not necessarily inherent in our profession. Nor has anyone accused us of having assumed them. Father Flanagan is merely pointing to them as dangers—dangers to which our particular profession might be especially susceptible.

The warning is timely, warranted, and gratefully received. ★

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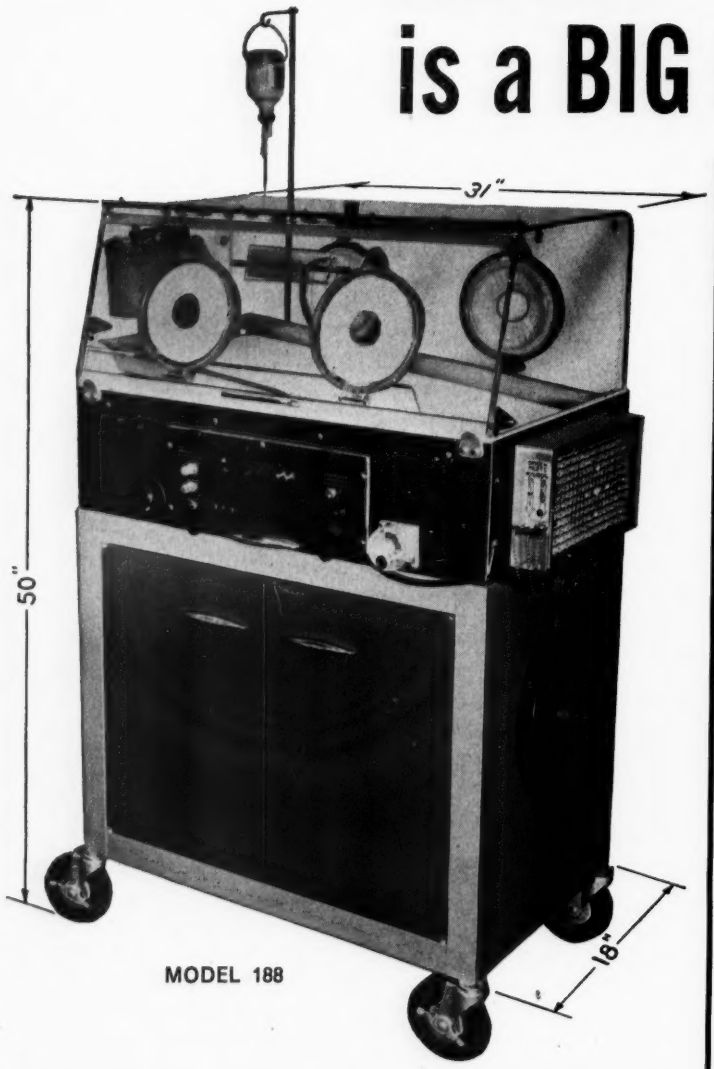

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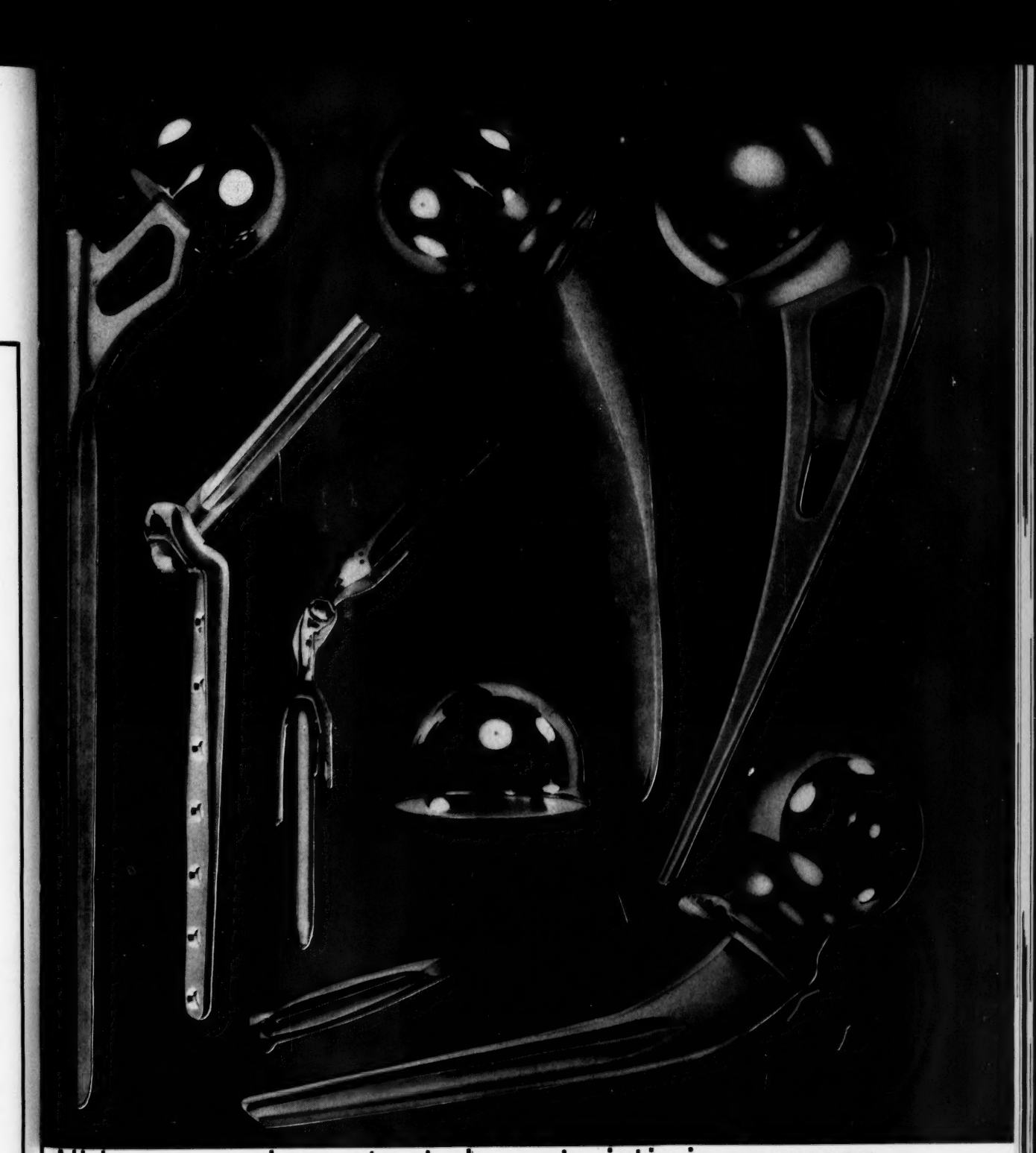

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A.C.H.A. Fourth Congress Report

THE FOURTH ANNUAL Congress of the American College of Hospital Administrators drew another capacity crowd to Chicago Feb. 2-4. The management meeting followed the same format as in past years, with breakfast seminars on some 18 subjects scheduled each day at the Morrison Hotel. A banquet on Thursday night opened the Congress and Prof. Benjamin Selekman, Kirstein Professor of Labor Relations Emeritus at Harvard University, gave the Arthur C. Bachmeyer Memorial Address at the opening general session on Friday. In his discussion of "A Moral Philosophy for Management" he said that moral responsibility is implicit in hospital administration. He said deficit financing should be the order of the day in hospitals, short of complete bankruptcy. We are conditioned by secular responsibilities, he said, and moral power has to be equated in modern society with other powers such as scientific power and political power, both of which impinge on hospital administration. Power and morality, then, are the axes, according to Prof. Selekman, around which we must think if balance is to be maintained.

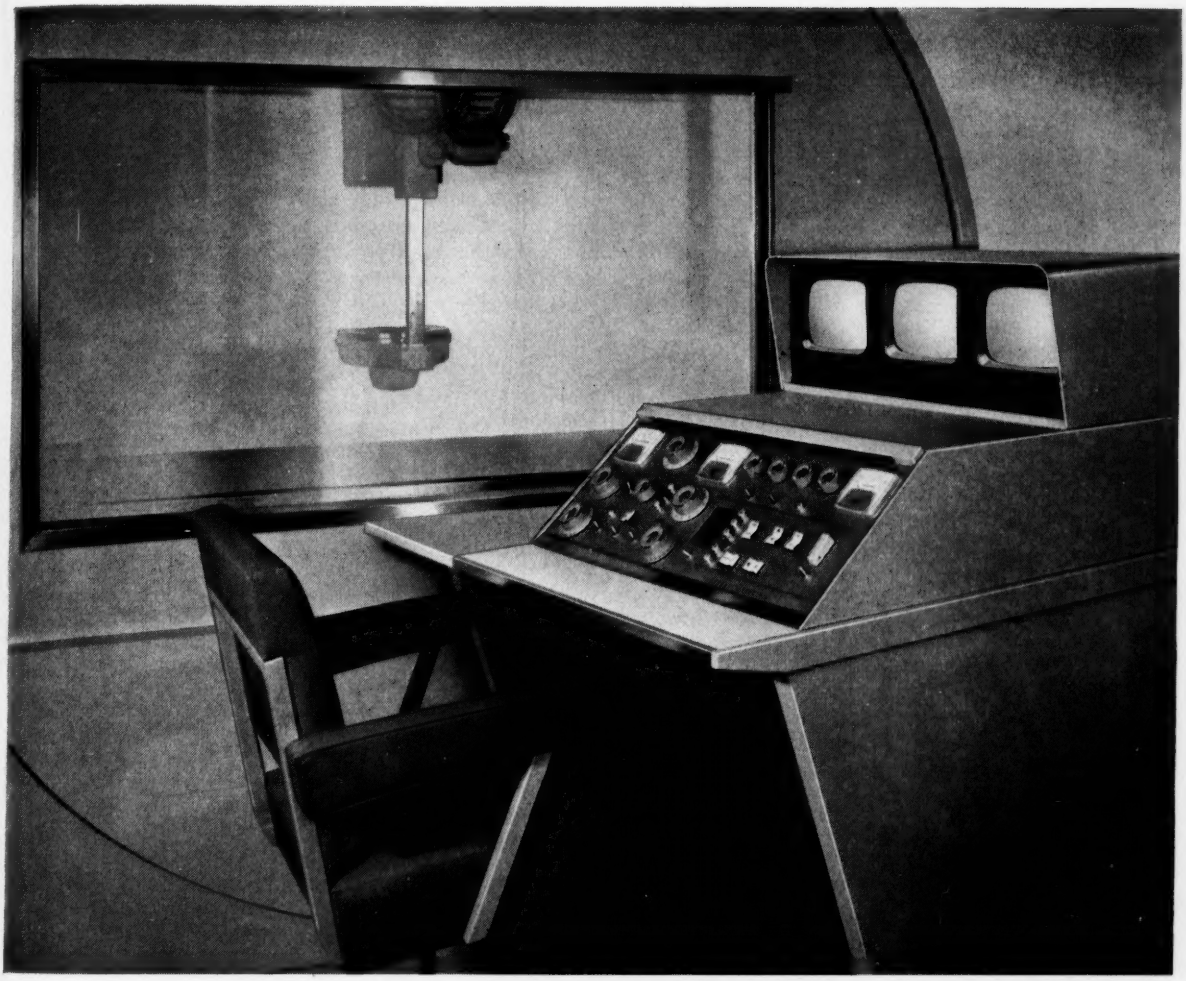
A mature attitude toward power, the professor said, is a requisite for those who follow the Judaeo-Christian tradition which teaches that power is evil unless used with a mature attitude. The very growth of business management has made inevitable the search for a moral basis of operation, and modern management must seek the sanction of the public because this sanction is not inherent in ownership. He listed technical competence and moral involvement in human society as the two major sanctions. He cited four major systems of power as: 1. The science (knowledge) system—the main basis for our material progress; 2. The economic system—corporations using capital and human resources and directing them to a goal; 3. The governmental system—the State which possesses disciplinary powers of incarceration, punishment, etc., and 4. The moral system—the power system which makes management operational. He said the most persistent of all powers is the moral power eternalized in all of us as conscience.

As a natural consequence, administration is a constant state of tension between the technical *must* and the ethical *ought* and this is more pronounced in corporations, where technic is a real factor in survival. Professor Selekman referred to the three cardinal sins of management as: 1. Self-righteousness—always trying to be 100 per cent right (in mistakes, someone else is always to blame); 2. Cynicism—everyone has his "price" and everything is corrupt, and 3. Perfectionism—"I can do it all—and better than anyone else," or arrogating to the organization or oneself the judgment on what should happen to large segments of people, assuming prerogatives far beyond limits of capability.

Clarence B. Randall, retired, chairman of the Board of Inland Steel Co., Chicago, was presented with the "Executive of the Year" award at the Friday luncheon. A famed author and lecturer, Mr. Randall has been a crusader in the cause of free enterprise. The College also presented the James A. Hamilton Hospital Administrators' Award at the luncheon to Prof. Melville Dalton, Ph.D., professor of Sociology at the University of California in Los Angeles. Dr. Sutley earned the accolade for his book, *Men Who Manage*. Ray E. Brown, immediate past-

(Concluded on page 38)

A.C.H.A. OFFICERS AND AWARD WINNERS posed at the Fourth Annual Congress (l. to r.) Dean Conley, executive director of A.C.H.A.; Prof. Melville Dalton, U. of Calif.; Prof. Warren G. Bennis of M.I.T.; Clarence Randall, retired chairman of the Board of Inland Steel Co.; A.C.H.A. President Melvin L. Sutley, and Ray E. Brown, Supt., University of Chicago Clinics.



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A.C.H.A. REPORT

(Begins on page 32)

president of the College, was honored as recipient of the annual Article Award, "The Nature of Administration," which was published in *The Modern Hospital.* The Edgar C. Hawhow Award went this year to Prof. Warren G. Bennis, School of Industrial Management, Massachusetts Institute of Technology. He was the author of "Problem-Oriented Administration," which was published in *Hospital Administration.*

Dr. Howard B. Sprague, well-known cardiologist at Massachusetts General Hospital, discussed "The Physical Stress on Executives" at the Saturday morning general session. In a most entertaining and disarmingly serious manner, Dr. Sprague delineated the foibles and mores of living that place great physical strain on already-overburdened executives. His whole speech was a rather wry appeal for sensible eating, exercise and recreational habits. Many of his remarks have been widely quoted in the popular press. Saturday's luncheon speaker was Cyril O. Houle, Ph.D., professor of Education at the University of Chicago, whose subject for the first Dr. Malcolm MacEachern Lecture was on "The Inquiring Mind." He related his experience with a sample group of 22 persons, chosen after lengthy search and careful inquiry, who had unusual intellectual curiosity. He noted that the pattern of intellectual curiosity was not the same in any one of the subjects, but all evidenced like characteristics, an inevitable overlapping of interest and method, etc. He classified the persons with what he terms "inquiring minds" into three broad, intersecting circles of interest: the goal-oriented, the activity-oriented and the learning-oriented.

Goal-oriented people, he said, pursue education to achieve a goal outside learning itself. The ideal continuing learner *may* have finished high school, but has educated himself to a point where he is now in a supervisory position, socially accepted, etc. The activity-oriented person continues to learn, not for any particular end, but because the learning activity has come to have meaning in itself to him. His satisfaction derives from participation, sometimes to escape problems at home or in business. The learning-oriented person pursues education purely for the joy of learning. He "just wants to know." Such people are as they are, he theorized, through a series of circumstances as varied as the lives of the individuals.

Professor Houle cited a rather general opposition in modern society to continued learning. However, those who live in an enclave of support such as a university campus, a tight social or common group of some sort, develop a similarity of interest and are encouraged to cultivate inquiring minds. Another means of support for the potential inquiring mind, he said, is association with persons who are natural "stimulators." The enthusiasm of such persons, he said, may lead others to continued education.

We especially liked his aside about television. Television is called a medium, according to Prof. Houle, because it is *never* medium rare—and seldom well done. We were pleased with the excellent attendance at the Congress and the caliber of most of the speakers. As usual, the program committee projected a presentation of management philosophy at a high level and, we thought, achieved its goal rather well. ***H. R. Bryden.*** ★

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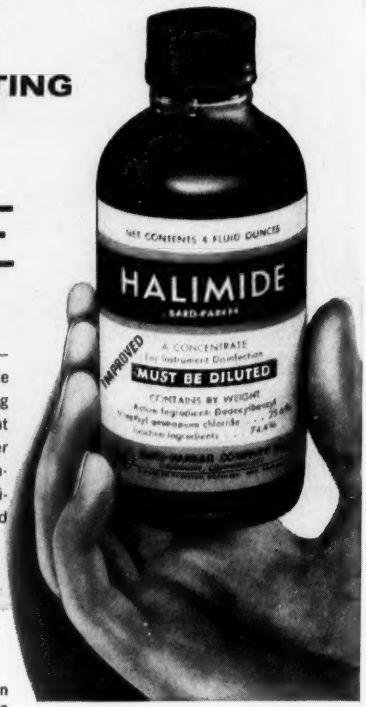

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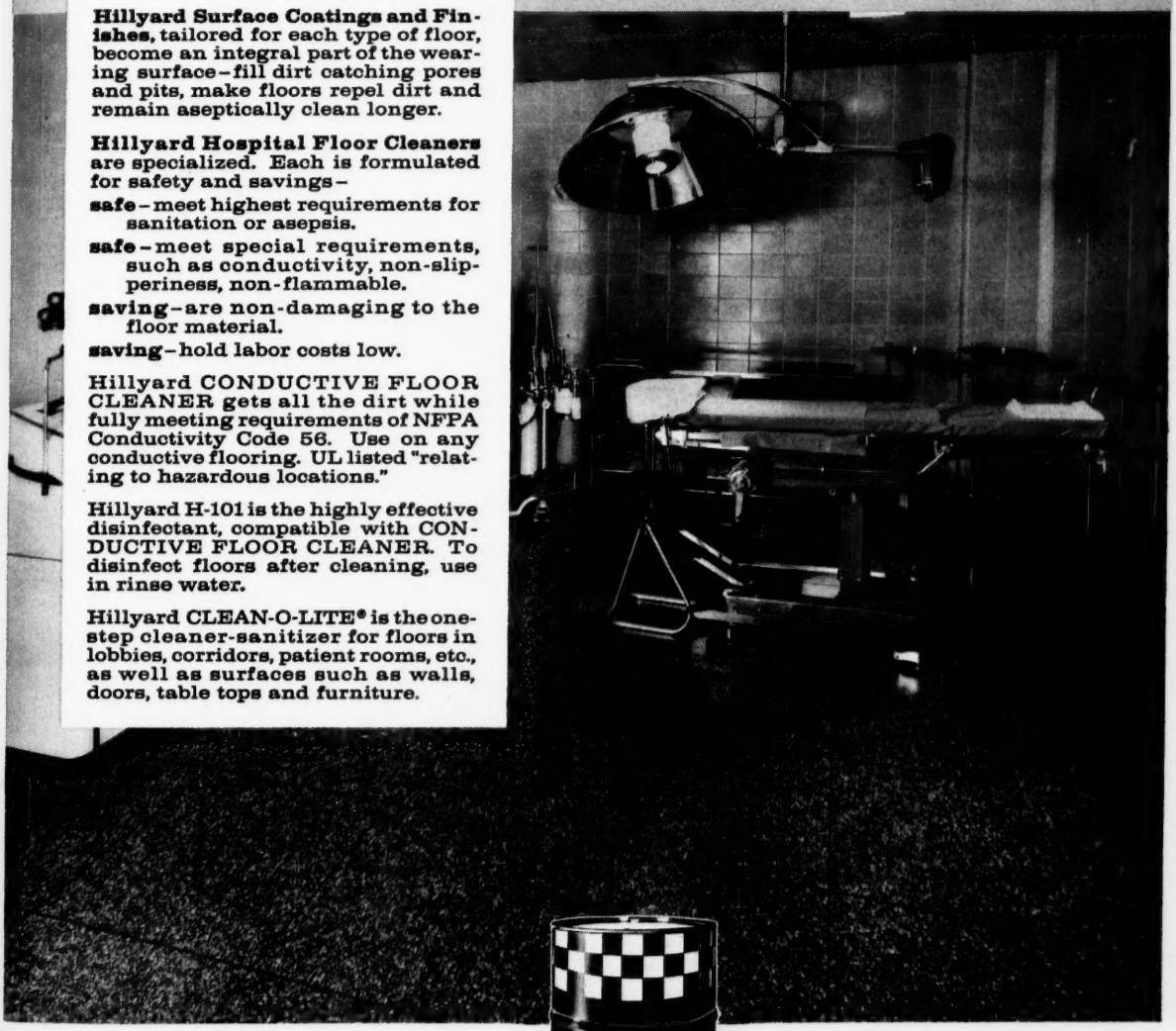

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NEWS

Chicago Hospitals Sued: Discrimination Charged

In a suit filed Feb. 10 in Federal Court 10, Chicago Negro doctors charged 56 Chicago area hospitals and five other groups of discrimination against Negro patients and doctors. The groups charged in the complaint include the Hospital Service Corp. (Blue Cross), the Illinois Medical Service (Blue Shield), the Chicago Medical Society, Chicago Hospital Council and the Illinois Hospital Association. The action charges the defendants maintained a boycott in violation of the Clayton and Sherman anti-trust acts which placed restrictions and limitations on admittance of Negro patients to hospitals and appointment of Negro doctors to staff positions.

The plaintiffs charged that about 12 years ago the hospitals, the Chicago Hospital Council and the Illinois Hospital Association entered into an agreement that the hospitals would continue to maintain arbitrary restrictions and limitations against admitting Negroes or staff appointment of Negro doctors. They charge further that the defendant hospitals and some of the groups charged have maintained these restrictions and limitations by concerted action.

The Chicago Hospital Council, representing more than 70 hospitals in the Chicago Metropolitan area, issued a statement almost immediately reiterating a September 30th, 1960 policy statement which opposed "prejudicial discrimination" in staff appointments. A section of the statement reads: "The Chicago Hospital Council favors appointments of physicians who meet established professional and moral qualifications and the needs and regulations of the hospital without regard to whether the physician is Negro or White."

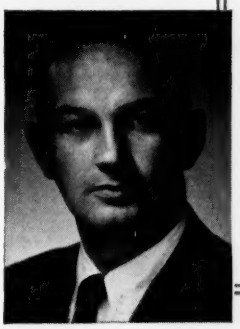
Indian Need Is Great

Sister Jane Frances Heaton, a Medical Mission Sister, visiting home in Miami, Fla., after 13 years' service in India said that the need of the Indian people is "so great that one does not count the years." Sister Jane Frances conducts the hospital pharmacy at the Medical Mission Sisters' hospital in Patna in northeast India. She said a typical day includes calls for medicine

MERCY HOSPITAL, Muskegon, Mich., recently installed new equipment for its intensive care unit and physical therapy department. The equipment was secured through the joint efforts of the hospital's auxiliary and medical staff, and the Brunswick Corp. Examining one of the pieces of equipment donated for the physical therapy department by the Mercy Senior Guild are (l. to r.): Mrs. C. J. Comeau, president of the Guild; Mr. John Silk, physical therapist; Mrs. James Woodworth, past-president of the Guild, and Sr. Mary Theodosia, R.S.M., administrator of the hospital.

What HIGH VACUUM Sterilization can mean for your hospital

by Richard D. Castle



NO. 1 IN A SERIES

This is the first in a series of articles on High Vacuum Sterilization. Its purpose is to examine the significance of this new process. Its author is Richard D. Castle, head of Research and Development, Wilmot Castle Company, Rochester, N. Y. Working with the Drayton Regulator & Instrument Co., Ltd., Castle has developed the OrthoVac* High Vacuum Sterilizer, first models of which will be installed this year in U. S. hospitals.

● The concept of High Vacuum Sterilization was first developed by scientific interests in England. In a research project to evaluate the best system of sterilization for use in a national hospital modernization program, both the continental "partial vacuum" system of air removal and our own concept of "downward displacement" were studied. Both were found deficient. The high vacuum system has since been adopted as the national standard in England.

● We feel most fortunate in being associated with one of the early participants in this program—the Drayton Regulator & Instrument Co., Ltd., of England. Drayton's high vacuum controls are today recognized as the industry standard and the company has already converted over 200 English installations to the high vacuum system.

● The same problem the English have faced and begun to eradicate exists in this country today—namely the inability of the conventional sterilizer to assure efficient, totally effective air removal under all conditions.

● Air, of course, acts as a barrier to steam penetration, slowing and sometimes even preventing the attainment of bactericidal conditions. Under present systems, the speed with which air can be removed, and the certainty of its removal, depend almost entirely upon the size and density of the individual sterilizer load, as well as the manner in which packs have been wrapped and placed in the sterilizer.

● In a test, four seemingly identical packs were placed in varied positions in the chamber of a sterilizer. One reached sterilizing temperature in 5 minutes, another in 25 minutes, with the third and fourth falling in between. Since there has been no way to accurately estimate the time necessary for air removal and heatup in any given case, only gross approximations of overall sterilizing time have been applicable, and these only with addition of ample and varying safety margins. Under these circumstances, it is not surprising to find one hospital routinely sterilizing dry goods for 30 minutes at 250°F, another for 60 minutes, and still another for 90 minutes. Standardization, with the safety and efficiency it brings, has been impossible.

● With the advent of the newly-developed Castle-Drayton OrthoVac High Vacuum System, however, such standardization becomes feasible in this country for the first time.

● *The OrthoVac System utilizes a high-efficiency vacuum pump to draw a near-absolute vacuum in the sterilizer before steam is introduced. So effective is this removal that steam penetration and load heatup are practically instantaneous. Absolute uniformity of temperature is obtained throughout the load within a predictable period. The result is sterilization which consumes far less time, incurs less damage to goods processed, and reduces the process to mathematical certainty.*

● Certain essentials, we have found, are necessary to make the system practical under hospital working conditions. First, the vacuum system used must remove enough air so that no variation in the time necessary for steam-air interchange occurs. This requires a vacuum of less than 20 mm absolute. Furthermore, the vacuum system must be controlled so as to produce precisely the same degree of vacuum during each cycle. To accomplish this, we are using a compensated absolute pressure switch which automatically maintains a precise pre-set degree of vacuum during each cycle, regardless of barometric pressure fluctuation or height above sea level.

● Secondly, to standardize procedure and eliminate possibility of error, a device known as a time-temperature integrator is essential. This device automatically and continually adjusts the exposure period to reflect the temperature in the load, following established thermal death curves. Human error in temperature selection is avoided, fluctuations in steam temperature are automatically compensated for, and the load is exposed to temperature for the minimum time necessary for kill through use of this device.

● Aside from the increased safety of the process, a number of other significant contributions are made by the OrthoVac High Vacuum System.

● A typical "dry goods" cycle takes just 15 minutes from beginning to end, compared to the present-day 60-90 minute cycles. By drawing a "post-vacuum" at the end of the cycle, residual moisture is "boiled" away under reduced pressure and the load returned to its original state of dryness. This not only accelerates drying, but cools by evaporation so that the load may be handled comfortably.

● Owing to the much shortened overall cycle and the virtual absence of air, fast-killing temperatures up to 275°F can be routinely used for fabrics, with considerably less deterioration than by conventional methods.

● Sterilizers may be loaded to capacity—an increase of approximately 25% for every existing "dry goods" sterilizer.

● More effective air removal increases, too, the number of items which can be sterilized in steam. Small bore items such as capillary tubes, needles and goods packaged in permeable material such as paper, nylon autoclave film or cardboard containers, formerly difficult or impossible to sterilize in steam, may now be routinely processed.

● *First production models of the OrthoVac Sterilizer will be installed in hospitals this year. Based on Drayton's experience in England, we have developed the OrthoVac System as a control console which, in many cases, will permit on-the-job conversion of existing "downward displacement" sterilizing equipment. The console design, we feel, will allow hospitals to convert present sterilizers to the safer, more efficient high-vacuum system without spending the additional funds necessary to purchase a complete new sterilizer, or altering present sterilizer facilities to accommodate additional sterilizing equipment.*

For further information on OrthoVac write for Bulletin H-283

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The hospital is entirely dependent on gifts for antibiotics and large quantities of vitamins. Among the most generous doners has been Dr. William C. Caccamaise of Rochester, N.Y. He has also made two three-month visits to the hospital to treat eye diseases.

Catholic Relief Service — National Catholic Welfare Conference — supplies medicines and infant apparel to the hospital. UNESCO has equipped the school of nursing attached to the hospital. Sister Jane Frances has trained 25 young Indian women in pharmacy. They are now working at hospitals in south India, and many have entered religious life.

Aid to Lepers

A movement has been started in Brantford, Ont., Canada, to make Canada's 1967 centennial celebration the occasion for a major contribution to the eradication of leprosy, according to an article appearing in the January issue of the *Canadian League,* published by the Catholic Women's League of Canada. The project has been endorsed by Most Rev. Joseph F. Ryan, Bishop of Hamilton.

Miss Yvette Leroy, a member of the Order of Charity, a lay organization dedicated to the cause of leprosy sufferers, said that the four needs of lepers are adequate medical care and attention, proper food and shelter, freedom from the fear of perpetual segregation, and freedom from discrimination concerning social contracts and job opportunities after successful treatment. She asked the members of St. Joseph's C.W.L. Council to write to the Centennial Council in Ottawa "to make known your desire to see Canada become the conqueror of leprosy, by linking the eradication of this malady with Canada's Centennial." Her request was endorsed by other C.W.L. parish councils. The total number of lepers in the world is approximately 16 million, slightly less than the total number of men, women and children in Canada.

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WOMAN OF THE YEAR at Little Rock, Ark., is Sr. Margaret Vincent, S.C.N., administrator of St. Vincent Infirmary in that city. She is past-president of both the Little Rock Hospital Council and the Arkansas Conference of C.H.A.

Cure of Monk at Lourdes Declared Miraculous

Bishop Francois Charriere of Lausanne, Geneva and Fibourg, Switzerland, has officially recognized as miraculous the cure of a Swiss Benedictine at Lourdes, France. Brother Leon Schwager was suddenly cured of multiple sclerosis during a procession of the

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But don't let this easy maintenance fool you. Contrast does a man-sized job. Colorless, wax-free Contrast Floor Polish will not . . . cannot . . . discolor even pure white floors. And rubber marks, scuffs, water spots and all other nuisances will become problems of the past.

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Blessed Sacrament at the French shrine in 1952.

In 1951, Dr. Zander of Zurich's neurosurgical Polyclinic declared Brother Leon incurably afflicted. In the spring of 1952, when he went to Lourdes with a Swiss pilgrimage he could no longer walk. The day after his arrival he was taken to bathe in water from the spring discovered by St. Bernadette Soubirous. Then during the procession of the Blessed Sacrament, he felt himself cured. He was able to return to the hospital without aid. The cure took place on the feast of the Solemnity of St. Joseph, April 30. In 1959 the international medical committee at Lourdes declared the cure inexplicable by natural causes. Since his cure, Brother Leon has returned every year to Lourdes, where he cooks for the sick.

Most Deaths Now Occur in Hospitals

The increasing number and proportion of the deaths in the U.S. are occurring in hospitals, a reflection of the growing use being made of these institutions in the diagnosis and treatment of serious illness. The number of deaths increased about 644,000 in 1949 to more than 877,000 in 1958. The proportion that these deaths were of the national total rose from 45 to 53 per cent.

It is expected that an increasing number of people with terminal illnesses will utilize hospital services as the bed capacity and diagnostic and therapeutic facilities of these institutions expand further. An increasing number of people also have availed themselves of hospital services through voluntary health insurance. It is estimated by the Health Insurance Council that there are now more than 130,000,000 people in the U.S. protected against the costs of hospital care—more than twice the number covered only 12 years ago.

$8.5 Million, 300-Bed Hospital Donated by Layman, Dedicated

An $8.5 million hospital financed by a contribution from W. K. Warren, Oklahoma City oilman, was formally dedicated recently by Francis Cardinal Spellman, Archbishop of N.Y.

The 300-bed St. Francis Hospital in Oklahoma City is thought to be the largest single gift by a U.S. citizen to a religious order. The hospital will be conducted by Sisters of the Precious Blood.

Name Executive Director for National Cancer Foundation

Miss Irene G. Buckley has been named executive director of the National Cancer Foundation, Inc., 37 E. 68 Street, New York City. Formerly associate director, Miss Buckley succeeds Dr. Samuel W. Dooley, who will continue as medical consultant. Miss Buckley is president of the Social Work Vocational Bureau.

Rehabilitation Consultant Named for A.H.A.

John A. Hagan, former state supervisor for the Pennsylvania Bureau of Rehabilitation, has been appointed a rehabilitation consultant for the American Heart Association, New York. In his new position as assistant to Dr. Frederick A. Whitehouse, director of rehabilitation, he will help plan and develop education, research and demonstration programs conducted by Heart Associations throughout the country. ★

Heavy duty Vicrtex V. E. F. Dado Wall givs major operating room (one of six) floor-to-ceiling protection. Community Hospital, Riverside, Calif.

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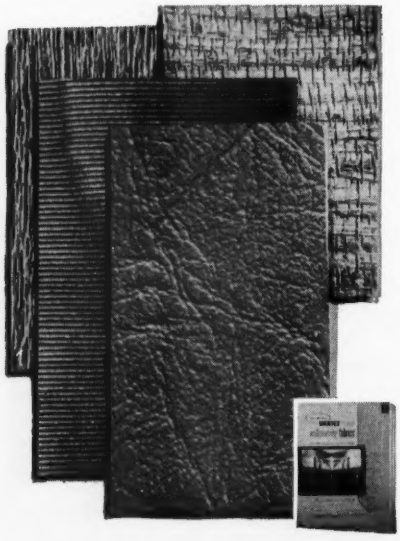

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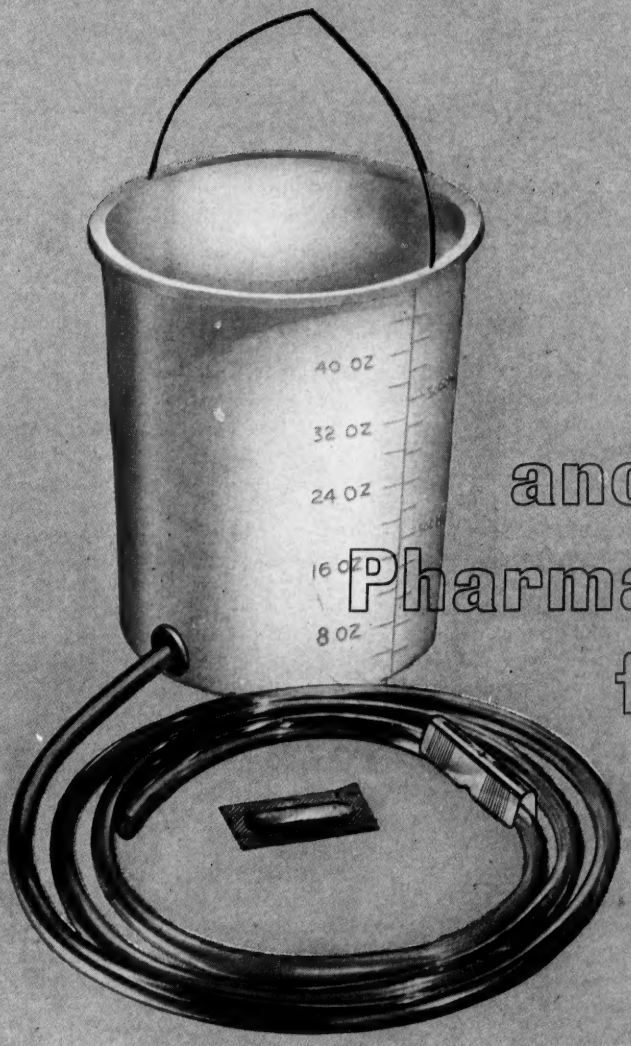

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Buying Office Supplies & Equipment

by FRED O. MacFARLANE
County of Alameda Purchasing Agent
Oakland, Calif.

THE KEY TO SUCCESS in the purchasing of office supplies is contained in three words — *standardize, store* and *contract*. Among stationery items, for example, a wide variance in price exists from the retail to the wholesale level. A hospital purchasing agent may be buying his supplies from a local retail store at 10 per cent or even 25 per cent off retail price. If he is buying out of stock and in broken package lots, this is a fair arrangement. However, the stationery wholesaler who sells to the retailer offers an even larger discount. These wholesalers, in most cases, are calling on business houses with their own sales force and selling direct, where volume is attractive enough. It follows, then, that everything possible should be done to make one's business attractive to the wholesaler, at least for the items where it is found possible to do volume buying in standard package lots.

The first step for the purchasing agent here, where many items of different varieties are offered, is to establish a standardization program in the hospital which will reduce the number of sizes and styles of items being purchased. For instance, the hospital may be buying 8½ x 11 three-ring binders in one-inch ring size in *canvas* cover for one department, *fabroid* cover for another department, and *genuine leather* cover for still another. Some departments may be ordering *flexible* covers, and some, *stiff* covers. By getting the users together and working as a standards committee, it may be possible to standardize on one type of binder cover. This same process may be applied to pens, pencils, paper, typewriter supplies and the many other items which are in everyday use in office operations. All standardization should be directed toward *sizes* and *styles* of items, however, and not *brands*. For example, in standardizing desk staplers, the discussion should center on a *size* of stapler which will do all required desk jobs in the hospital, and a *style* of stapler as it pertains to the proper depth of throat, type of anvil and even color. The brand is a matter of purchasing prerogative and should always be left for the purchasing agent to determine at the time of the purchase.

After standards have been set by the standards committee on individual items, the next step for the purchasing agent is to consider the possibility of storing the items in the hospital. Of course, the final determination in this area depends on two factors—the usage of the item and the available space in the hospital.

Usage should be estimated on a short-term basis (60 days) and on a long-term basis (one year). Those items showing active usage on a 60-day basis are the ones that definitely should be considered for storage, because they can be secured in standard package lots. Maintaining a storage of these items has two very important advantages: The opportunity to buy in quantity and qualify for quantity prices; the assurance of an immediate and constant supply of *standard* items, so that there will be no need or opportunity for the ordering department to deviate from set standards through outside purchases of "emergency" requirements. The actual quantity to be stocked depends, of course, on the usage, and also on the amount of space in the hospital which can be devoted to a storeroom. On some bulky items of active usage, for instance, space restrictions may limit the inventory to a 30-day supply, while on others it may be more economical to stock a 90-day supply. In all cases, if the space is available, storing of volume-use items in sufficient quantity to attract competition from wholesalers and even manufacturers will result in savings sufficient to pay for storage costs.

The last step for the purchasing agent to consider is contracting. By contracting is meant an agreement with a specified vendor to supply all, or a specified part, of the individual items for a definite period of time at specified prices. The consideration on the buyer's part is that he agrees to buy his full requirements of the stated materials from the contract vendor *only*, and the consideration on the vendor's part is that he agrees to supply the full requirements, and at the stated prices. This is known as a *requirements contract* in legal terminology, and has been interpreted by the courts to be a valid contract, even though exact quantities are not stated. Of course, any attempt by the buyer to purchase in unreasonable quantities during a period of sharply increasing prices would be unfair and has been held by the courts to void the contract. However, since most, if not all, of the purchases of a hospital are for consumption as is, as contrasted with purchases for a factory or a sales distributor, this problem of unreasonable quantities does not usually arise.

Contracting one's requirements of stationery has three main advantages: It attracts better prices by consolidating requirements into one package, it assures the hospital of a constant and adequate source of supply from a reliable vendor interested in its problems, and it eliminates the administrative detail of obtaining competition on individual purchases or, even if bids are

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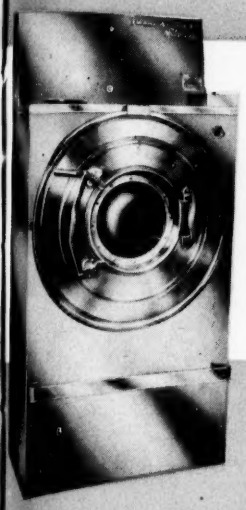

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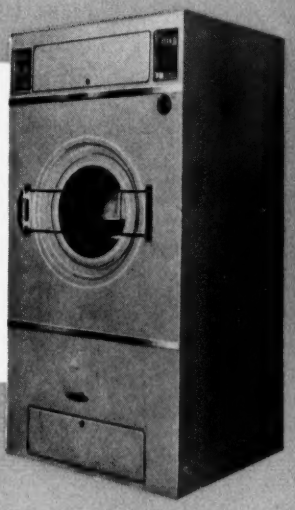

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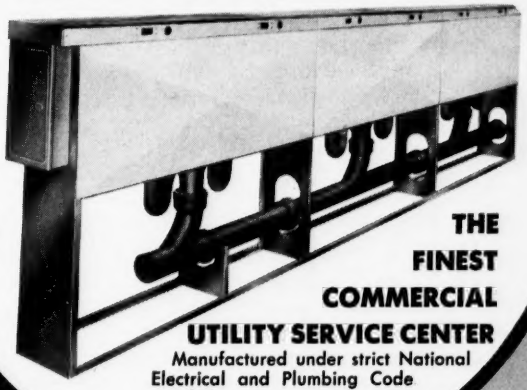

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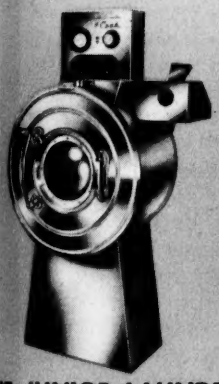
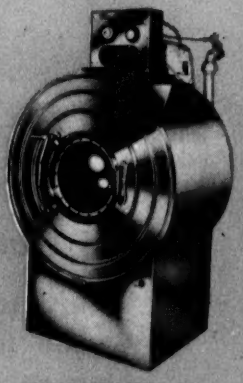


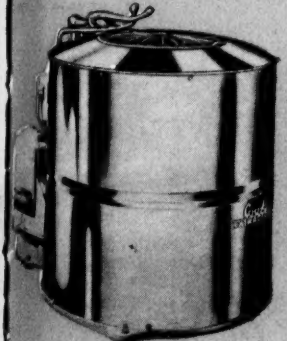
THE JUNIOR LAUNDET

…ular size open-end washer in 25-lb. …weight capacity. Illustrated with …matic Supply Injector, special …ment on all pedestal models.



THE CENTURY

Heavy-duty 100-lb. dry weight capacity washer. Finished in gleaming stainless steel. Also available: The Senior, with 75-lb. capacity.



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…ilable in 20" and 26" models, made …n gleaming stainless steel. Cook extractors are the perfect link between washer …d dryer.

Built Up to a Standard—Not Down to a Price

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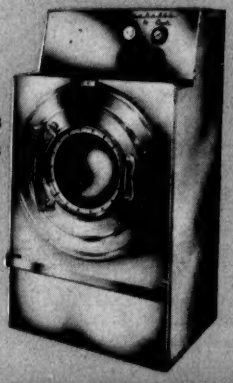
Handsome stainless steel cabinet makes beautiful in-line installation, has 50-lb. dry weight capacity. Intermixes with 25-lb. deluxe Laundet or deluxe Twin.



DELUXE TWIN

Two famous Cook 25-lb. open end washers housed in one gleaming stainless steel cabinet. Available with automatic controls or with coin-meter. Ends "split" runs, increases production.

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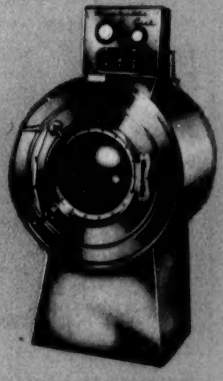

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Get back to first principles of cleanliness and sterility and you will *control the staph problem.*

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not normally solicited, it eliminates the problem of locating a source for the hundreds of specialty items involved in office supplies.

Depending on the individual situation within the hospital, the contract may include *all* the requirements of office supplies, including those items the purchasing agent intends to buy in quantity for stores stock, or it may exclude stores items. The extent of the items to be contracted will depend on the over-all annual volume for all office supplies. In other words, a hospital with good annual dollar volume may want to buy stores items on bids separately, and contract only the non-stores items. A smaller hospital may *need* the dollar volume of the stores items in order to make the contract which includes non-stores items more attractive to prospective contractors.

In developing alternate acceptable brands of stationery or office equipment items, there is a buyers' index published annually by *Office Appliances* magazine. This index is very well arranged by item, and is cross-referenced to manufacturers and tradenames. The magazine is available at 600 West Jackson Boulevard, Chicago 6, Ill.

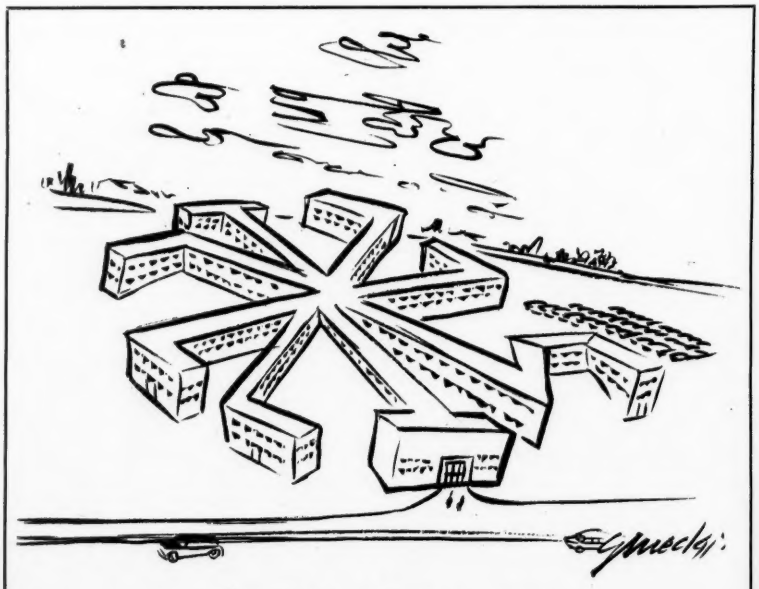
Office Machines

The main consideration in the purchase of office machines is the particular job or work to be accomplished. Of secondary importance is competition and price. In other words, before competition and price should even be considered at all, it must be determined that more than one brand or type of office machine can do the same job equally well. Office machines are tools of labor, and it need not be pointed out what happens to small savings in price over the life of a machine which is not quite suitable for the job to be done.

Office machines are available in so many designs, capacities, and speeds that it is a distinct challenge to purchase the proper one. One word of caution—it is much better to buy a machine with a little more-than-enough capacity or speed for the job than one with just barely-enough, because new techniques of office management are constantly being devised which call for more and more speed and larger capacities.

There is no doubt that the person best able to describe the job to be done is the person actually doing it. And many times, if he is sufficiently familiar with the variety of equipment available, he is also capable of recommending the proper machine for the job. But this still does not relieve the purchasing agent of his final responsibility for the purchase of the proper tool for the particular job.

Because of the predominance of fair trade or fixed prices in the office machine field, the normal forces of competition are missing, at least from the price angle. The actual competition



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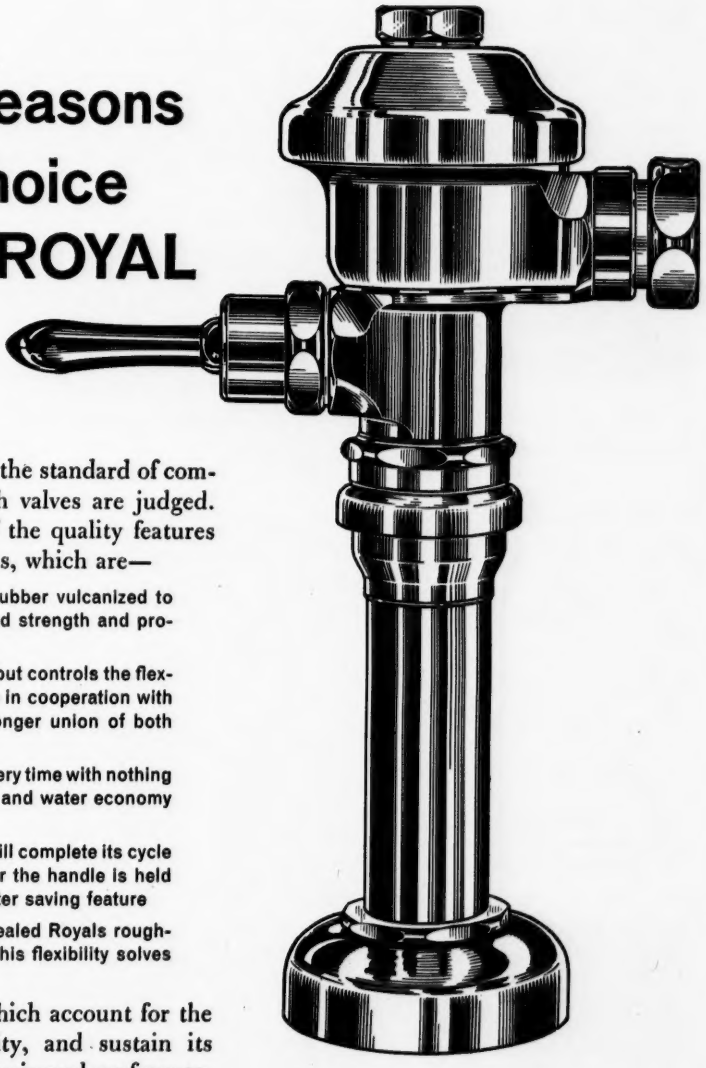

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Segment Diaphragm • Natural rubber vulcanized to brass reinforcements affords added strength and provides extra-long service life

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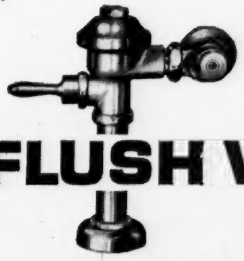
These are the quality features which account for the ROYAL's overwhelming popularity, and sustain its leadership as the Flush Valve of universal preference. They are further examples of that bonus of quality you expect from Sloan. And, since you can have Sloan quality at no extra cost, why not make sure you get it.



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comes into play in the comparative abilities of the various machines to perform certain jobs. But there also is one method that can be used to good advantage in bringing competitive pressure to bear on fixed price schedules. The technique is to trade something in on the purchase. If there are two or more brands of machines available which can do a particular job equally well, the use of a trade-in as part payment can bring marvelous results as a method of fostering price competition. Naturally, this will only work where competition for the order already exists, but it is something to bear in mind. It definitely pays for the purchasing agent to learn the capabilities of the available machines on the market so that these headon competitive situations can be fostered.

There are several other factors to be considered in the purchase of office machines, such as: availability of service, value of standardization and foreign-versus-domestic machines. However, these considerations are more apt to depend on local situations, and the part they play in the purchase determination will vary accordingly.

ALL-STAINLESS STEEL *Sanette*

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to harmonize with the most modern institutional equipment ...in CAPACITIES for every indoor waste disposal need. Fully enclosed mechanism.

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is also made in enamel finishes with stainless steel covers as standard equipment.

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14, 18 and 22 quart capacities.

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Office Furniture

For some unknown reason, many purchasing agents seem to buy office furniture as if it is a very disagreeable chore, and try to get it over with as soon as possible, either by buying whatever the requisitioner wants or by turning the whole problem over to an office furniture dealer. Needless to say, these are both expensive purchasing methods.

There are, unfortunately, a number of peculiar characteristics in the office furniture field.

1. Office furniture, because of its constant daily use by individuals, becomes a highly personalized matter and is therefore difficult to buy to please each individual.
2. Office furniture is becoming available in so many different styles and colors that it is almost impossible to keep up with the current situation.
3. Office furniture vendors will tell the buyer that he is only entitled to a certain discount and that he will get the same discount no matter from whom he buys.
4. Office furniture dealers have emphasized the "service" angle to such an extent that any thing offered at a lower price is automatically labeled as unsatisfactory because of the almost certain lack of service.
5. Office furniture, when it *is* requisitioned, is usually a short delivery item, or in other words, is needed immediately, if not sooner.

At the same time, however, it *is* quite possible to do a very effective job of purchasing office furniture. That is, it is possible to get high quality furniture at competitive prices, because of a number of *favorable* conditions which exist, especially in the *steel* office furniture industry.

1. There are about 10 manufacturers of steel office furniture who make high grade furniture of comparable quality.
2. There is a distinct similarity of styles in the lines offered by the majority of these manufacturers.
3. The office furniture industry is a very competitive industry, especially at the consumer sales level.
4. Office furniture, especially steel, is a relatively service-free commodity.
5. Changes in list prices for steel furniture occur at about the same time of the year for all manufacturers and depend mainly on steel industry prices.

How does the buyer take advantage of these favorable conditions to bring

Help to reduce transfer of oral pathogens ...even antibiotic resistant "Staph"

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about more effective purchasing? In purchasing there are four main steps he should take, although the amount of time spent on each step and the amount of detail developed will necessarily depend on the volume which is spent annually.

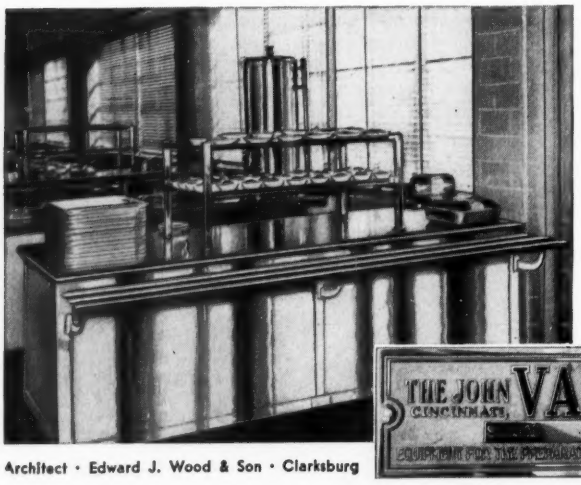
First, the buyer should standardize on a universal style of furniture that is produced by a number of manufacturers. The easiest way to do this is to request catalogs from the leading producers and compare their products merely from the standpoint of style. For, while there are some differences in their highly-styled "modern" series, there is a very distinct similarity in their standard or commercial series. In steel desks, for instance, the universal style can best be described as an island-base desk with cone or tubular foot and with a square-edged top banded with extruded aluminum or stainless steel. If there is a standards committee functioning in this area, the buyer may want to present the catalogs for inspection and then sell the committee on the idea of standardizing on a universal style for future purchases in all departments.

The second step is to develop specifications, or an acceptable brand list, which will assure the receipt of good quality furniture and still permit good competition. This is a *real* problem and the time spent here will be in direct relation to the volume spent. For every one brand of *good* quality offered there are at least two of low quality built for the "price" market and the unsuspecting buyer. They look good—unless you know where to look. There is no substitute for physical inspection in this step, and extra time spent in education learning what to look for pays off handsomely. The P.A. should read the latest available Federal Specifications on desks, chairs, and filing cabinets. These specifications present a fine way to get a quick education in the construction of good quality furniture.

The third step is to determine the approximate requirements of furniture for the regular budget period, collect them into one listing and prepare a *request for quotations.* The bid should list all the acceptable brands with their respective style numbers to avoid misunderstandings by the vendors. It may be worded in such a way as to agree to take certain quantities immediately and, in addition, the prices as quoted would remain in effect for a specified period for the further *full* requirements of the hospital as needed during the term of the contract. This would insure the receipt of the *one* brand for the entire budget period, thereby minimizing one of the chief criticisms of the departments regarding switching of brands. It would also strengthen the bid by increasing potential volume.

The fourth and last step is to solicit quotations from all local dealers who offer acceptable brands and are able to serve the hospital's account. Make no secret of the hospital's intention to do business with the vendor offering the best quotations and that it expects the relationship to be a continuing one. This might produce a very pleasant surprise.

This same process can be used in the purchase of all types of steel office furniture. Each type would have its own quality points to consider and its own set of manufacturers, but the basic principles would still apply. The situation with respect to wood furniture would be a little different in some respects, but even here it is possible to show dramatic results by following the same approach. ★



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PROJECTION

ALL PLANNING INVOLVES PROJECTION. In construction, therefore, the question is not shall we, but to what degree must we, project. When we are confronted with the picture of an office of the future without secretaries or stenographic pools and no employes except executives, we are inclined to discard "projection" as not sufficiently expressive and to substitute "propulsion" as better conveying the pace of activity needed to bridge the distance between what is and what may come to be. We do not have to delve far into the past to see that none of these proposed changes is impossible.

Basic to effective projection is a willingness to break with tradition, to realize that the farther planning is tensed back into the pattern of the past, the shorter must be the distance by which it springs forward into the future. What an exaggerated respect for tradition can do to a construction program may be learned from the experience of hospitals less than 10 years old but already unfit to meet current demands in health care.

Admitting the importance of projection is one thing. Planning so that projection will be achieved is quite another. For such planning involves not only the thinking and talking processes, but also definite provision for expansion, conversion and maintenance.

The factor of expansion seems to fit by natural sequence into any consideration of the future. Knowing at a later time what should be done will accomplish nothing, however, if, in the original planning, the direction of expansion has not been anticipated. If additional patient space is to be matched by service facilities, if the units in the expansion program are to be integrated into the functional operation of the hospital, the planner will need to have drawn heavily on his own foresight and on the help of others qualified to envision the course of medical and hospital care.

As important as expansion, and just as likely to create problems, is conversion. Advances in medical science and health care may call for the contraction of some facilities in favor of the extension of others. The person who plans a hospital building so that conversion can be accomplished without the traumatic accompaniment of pounding hammers and the hazardous traversing of debris-scattered corridors will have made a significant contribution to the peace of mind of his successors. Because he will have made transition easy, he will have contributed to a growth and development that, perhaps, he himself could never have foreseen.

The factor of maintenance differs from expansion and conversion in that it impinges on the daily life of the hospital. Because maintenance enters into the least, as well as the most important, aspects of hospital operation and is influential in determining cost, it would be extremely unrealistic to neglect viewing it in the long-run at the time of hospital construction. Projection here means evaluating need in terms of space. It calls for gearing the mechanical aspects of construction to the use of labor-saving devices and technics allied to automation. It means appraising developments in industry and determining their application in hospitals. Such appraisal to be of benefit must rest on the premise that, in spite of inherent differences in purpose, hospitals can learn from industry. Conservation of personnel depends to a significant degree on how well provision for the maintenance factor has been made.

Our aim must be to build not only anew but better. If, as a result of planning, we can reduce the ratio of personnel to patient even while improving the quality of patient care, and if we can look forward to expansion programs with only minimal disturbance caused by maximum integration and conversion movements, then we can be sure that we have not only planned wisely in the present, we have built for the future as well. ★

Who Builds the Hospital?

by **SISTER MARY THOMAS, R.S.M.**
Administrator, Mercy Villa
Baltimore, Md.

BUILDING A HOSPITAL involves more than the thinking, planning and organizing of one individual such as an administrator or architect. While the final responsibility may rest with the Board of Managers and whomever the Board appoints, building a hospital is also the responsibility of the community which it serves. The public knows the value of good medical care and demands the best possible hospital care. It is being educated to the advancements of medical science, yet expresses great concern over the rise of hospital costs, as evidenced by its attitude toward Blue Cross and other hospital insurances. At the same time hospitals now, more than ever, must depend on the support of the community for financing hospital construction and hospital operation.

In building a hospital, careful planning and intensive research are essential to provide adequate care as efficiently and economically as possible, while maintaining enough flexibility to adapt to ever-changing patterns of medical techniques and procedures. Sound thinking is a prerequisite to consideration of existing and future hospital facilities. The following factors must be surveyed: 1. Geographical area. 2. population trends, 3. type and size of the hospital facility needed in relation to the services offered in the surrounding area, and 4. financial resources for construction and hospital operation.

Some years ago the Sisters of Mercy recognized the need for improved facilities at Mercy Hospital, Baltimore, Md. An Advisory Board of leading business men in the city was formed to counsel and guide the sisters on finance and construction. At one time the plan was to relocate the hospital in a suburban residential area. After careful deliberation, however, the Sisters decided the hospital could best serve the community in its present location.

Mercy, with a capacity of 300 beds, is the only Catholic hospital in the center of the City. Outpatient department visits number 28,000 and more than 18,000 patients are treated in the emergency department annually. The hospital is located less than a mile from the University of Maryland School of Medicine with which it is affiliated. Furthermore, it is the only Catholic hospital in Baltimore with a medical school affiliation. This affiliation has existed since the amalgamation of the College of Physicians and Surgeons and the University in 1921. In this program, junior and senior students rotate through Mercy Hospital for surgical training. Sections of the class receive training throughout the year in pediatrics. Groups of senior students are assigned on a rotating basis in the field of medicine. In addition, Mercy has an accredited school of nursing and an accredited school of medical technology affiliated with Mount Saint Agnes College. Mercy also engages in research. One of its oldest research projects is its Anticoagulant Laboratory with the first such clinic in the United States.

These factors were carefully considered, in addition to the great work Mercy has always done for the poor and the needy, when the sisters made the decision to remain in the present location. Officials from the city and state, the police and fire departments voiced their appreciation of the selection of the site for the new Mercy Hospital in downtown Baltimore.

Following this decision steps were taken to proceed with extensive remodeling and expansion, the cost of which was estimated at $2.5 million dollars. Fund-raising counsel was retained to help develop the financial program and to direct a public appeal. It was soon learned that the existing buildings could not be remodeled to meet the standards of the State Department of Health.

The Hospital engaged the services of a hospital consultant to advise and assist the sisters and the architects in this project. A complete survey of the existing facilities and hospital operation was made. Other hospitals and institutions in the city were visited, par-

ticularly the State Department of Health and the University of Maryland with which Mercy is affiliated, to obtain a careful analysis of the service statistics, a medical and social appraisal of patients under care, occupancy rates and educational programs. This information was used as a guide.

Architects and engineers were engaged to design an appropriate functional structure as economically as possible. From the survey made by the consultant it was recommended to increase the bed capacity to 400 beds and to build service facilities that would eventually service 500 beds. While this recommendation was recognized and accepted, the question of cost was of great concern to the Sisters of Mercy. Realizing that complete facilities could not be built within a budget of $6 million dollars, the Sisters asked the architects to submit sketches to approximate this amount and to develop plans where facilities could be added as more money was available.

Mercy Hospital embraces one solid block, 90,078 square feet, half of it already occupied by the existing building. This means that the architects in planning the new building were limited to 339 feet by 107 feet with an area of 36,273 square feet and a perimeter of 892 feet. There obviously was no way to build but up.

Because of this restricted area in downtown Baltimore, the architects and the consultant studied several possible plans. In an attempt to solve the problem in terms of dimensions, space, structure, utilities, form and esthetic character the architects finally evolved the present scheme, a 17- story tower rising from a long, three-story base (See **Figure 1**). To avoid interfering with the service of the present six-story hospital, the tower will be narrow at its base. At the eighth floor it will cantilever over the present building to form the remainder of the 20- story building. Actually the nursing unit design is what determined the shape of the building (See **Figure 2**).

When this present scheme of the building was accepted by the sisters, committees were organized by the hospital consultant and the administrator to develop plans to assist the architects for expansion and replacement of facilities. The following committees were formed with representation from all departments in the hospital which enabled sisters, doctors, nurses, technologists and other personnel to have an active part in the planning of the new hospital: Operating Room, Obstetrics, Radiology, Laboratory, Laundry, Outpatient Department, Emergency Department, Pediatrics, Patient Space, Medical Records, and Medical Library, Education and Research, Nutrition Department, Pharmacy, Central Supply, Administration, Admitting and Social Service, Business Office and the Convent (See **Figure 3**).

Meetings were called often by the administrator, the consultant, and the architects. The administrator, her associates and the administrative resident attended all meetings. The director of Hospital Services for the State Health Department of Maryland

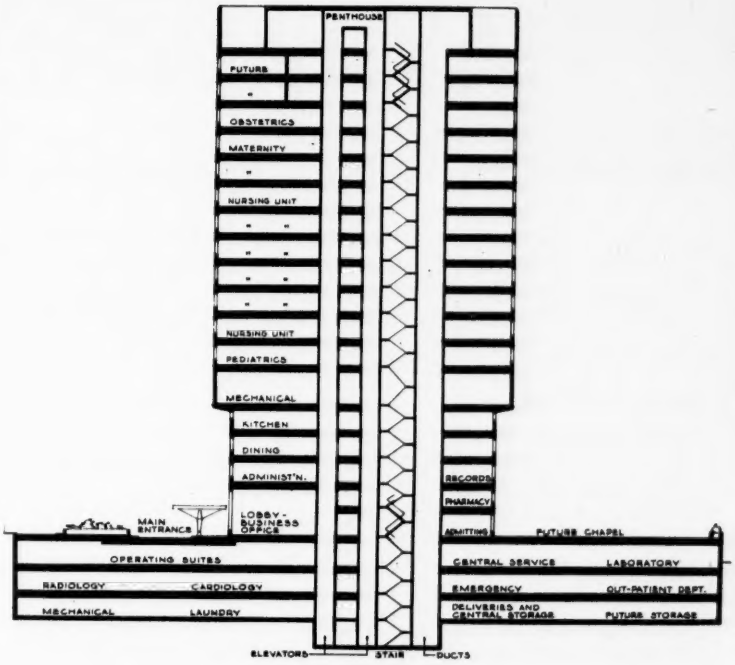


FIGURE 1—Cross Section

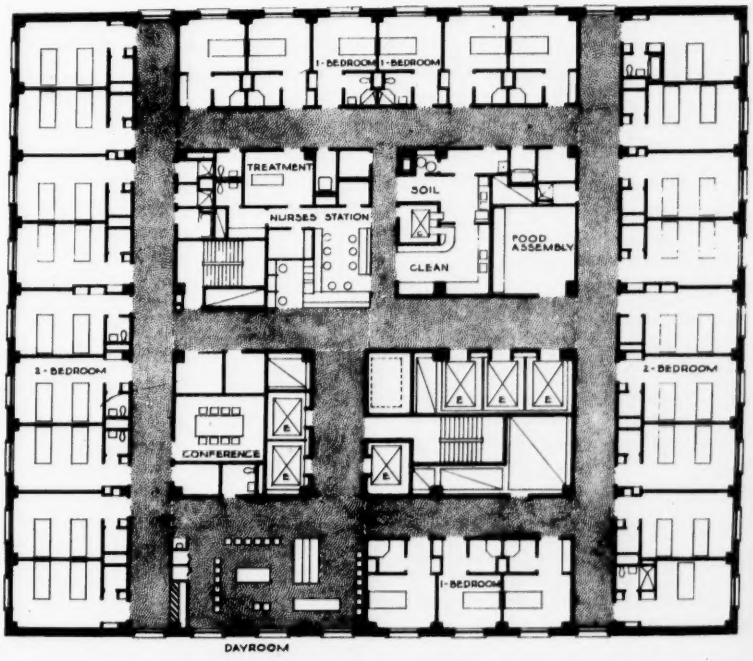


FIGURE 2—Typical Nursing Unit

FIGURE 3—Descriptive List of Building Planning Committees

HOSPITAL CONSULTANT: *Anthony J. J. Rourke, M.D.*

ARCHITECTS: *Taylor and Fisher, Baltimore; Westermann and Catalano, New York.*

Patient Space

Staff Member, Department of Surgery
Staff Member, Department of Medicine
Director of Nursing Service
Instructor in Nursing (Medical and Surgical)
Three Head Nurses (Medical and Surgical)

Education and Research

Medical Education Director
Director of Nursing Education
Three Medical Staff, active in teaching
One Instructor in Nursing
Chief of Surgery
Chief of Medicine

Operating Room

Chief of Surgery
Three Surgeons from Various Specialties
Chief of Anesthesiology
Operating Room Supervisor
Operating Room Head Nurse
Pathologist for specific areas
Radiologist for specific areas

Obstetrics

Chief of Obstetrics and Gynecology
Two Staff Obstetricians
One Pediatrician
Supervisor of Obstetrics
One Delivery Room Head Nurse
One Newborn Nursery Head Nurse

Pediatrics

Chief of Pediatrics
Two Staff Members—Pediatrics
One Staff Member—Surgery
Supervisor of Pediatrics
Instructor in Pediatric Nursing

Medical Records and Medical Library

Medical Record Committee of Medical Staff
Chief Medical Librarian
Assistant Medical Librarian

Laboratory

Clinical Pathologist
Tissue Pathologist
Director of Anticoagulant Clinic
Supervisor of Laboratory
Assistant Supervisor of Laboratory
One Technologist

Radiology

Chief of Radiology
Assistant Radiologist
Supervisor of Radiology Department
Urologist
Orthopedist

Pharmacy

Chief Pharmacist
Assistant Pharmacist
Evening Supervisor

Outpatient Department

Staff Member—Department of Surgery
Staff Member—Department of Medicine
Staff Member—Department of Obstetrics and Gynecology
Staff Member—Department of Pediatrics
Staff Member—Anticoagulant Clinic
Supervisor of Outpatient Department
Supervisor of Emergency Department
Director of Social Service

Emergency Department

Staff Member—Department of Surgery
Staff Member—Department of Medicine
Staff Member—Department of Orthopedics
Supervisor of Outpatient Department
Supervisor of Emergency Department

Nutrition Department

Director of Nutrition
Director of Nursing
Two other Dietitians

Central Supply

Supervisor of Central Supply
Operating Room Supervisor
Two other Sister Supervisors of Nursing Units

Administration

Administrator
Assistant Administrator
Secretary

Nursing Administration

Director of Nursing
Associate Director of Nursing Education
Associate Director of Nursing Service
Instructor

Admitting and Social Service

Supervisor of Admitting Department
Director of Social Service
Supervisor of Emergency Department
Financial Secretary
Statistician
Admitting Clerk
Accountant

Business Office

Supervisor of Business Office
Accountant
Financial Secretary
Supervisor of Admitting Department
Admitting Clerk

Convent

Sister Superior
Five Sisters

Laundry

Laundry Supervisor
Chief Engineer
Assistant Engineer
Supervisor of a Nursing Unit

was invited and attended those meetings in which his advice was needed relative to the requirements of the State Health Department and the Hill-Burton Act. The mechanical and structural engineers also attended meetings when their counsel was considered important in specific areas.

Sister supervisors were asked to prepare a list of department needs. All personnel in the department coöperated in studying and listing their requirements. The consultant usually presided at these meetings. A checklist was used in the form of questions to the committee members. This stimulated thinking and discussion, which in most instances led to better planning and aid for the architects in developing a functional and economical design. Some of the discussion topics in the Patient Space Committee meetings included: Size of patient rooms, intensive care unit, distribution of rooms on nursing units (single, double or four bed rooms), piped oxygen in all rooms, piped suction, location of wash basin, built-in closets, telephones in patient rooms, television, windowsills for flowers, flooring, ceiling vs. wall lights, location of night light, conference rooms, treatment rooms, medication room, head nurse office, showers in tubs, tubs of raised, sunken or regular height, communication system, linen storage, stretcher and wheel chair space, janitor's closet, utility rooms—clean and soiled, storage area and flower room. Detailed items were discussed for every department. Some items required more time for discussion than others.

Architectural drawings were scrupulously scrutinized at these meetings. The architect pointed out specific features in the plans and committee members became familiar with every detail of their departments. Corrections were made until each floor plan was accepted by the specific group. The final preliminary plans were signed by the sister administrator and the Mother Provincial before the architects proceeded with working drawings and specifications.

Pros and Cons

Construction is now under way for the new hospital. Although the steel frame work is completed for the entire hospital, certain floors will be left unfinished temporarily until funds are available for their completion.

Prior to selecting the architects, the hospital organized the Mercy Hospital Building Fund and changed the original goal of $2.5 million to $8 million. The Sisters of Mercy made the first contribution of nearly $1 million, composed of gifts by individuals, unrestricted gifts to the hospital, legacies, and bequests and gifts of individuals and organizations specified for new hospital construction. Before the active fund-raising got underway a few simple policies were adopted and implemented:

1. The project was to be presented as a community effort to improve the public hospital situation.
2. The program was to be "sold" to the public and support was to be voluntary.
3. Fund-raising was to be in keeping with the dignity of the institution.
4. Solicitation of the hospital family was to occur before public solicitation was made. This included the medical staff, womens' auxiliary, hospital employes, alumnae of the school of nursing, medical technologists and other personnel.

To prepare the public for solicitation the Building Fund launched an extensive program of public information and education. Attention was directed first to the general need for expanding and modernizing the total community hospital plant and then the Mercy Project as a substantial step toward solving the problem.

A number of factors influenced public support of the hospital. It might be helpful to mention three of these:

1. The long-standing, high professional regard for the hospital with its continuous care for the needy and the poor.
2. Full accreditation status and the hospital's educational programs.
3. The extensive use of the emergency facilities by business men, the public at large and the Police and Fire Departments.

There were also some negative aspects:

1. Baltimore has a traditional conservatism.
2. Giving standards in the area were between one-half and two-thirds of the level existing in other cities of comparable size.
3. There was severe competition at this time from other hospital campaigns.

At this writing more than half of the total goal has been raised. During the early part of the campaign, application was made for a maximum grant from the Federal Government under the provisions of the Hill-Burton Act. While the response to the appeal has been gratifying and encouraging, a continuous fund-raising program is necessary for Mercy to complete its facilities.

Summary and Conclusion

In building a hospital, careful and intensive research is essential and must include: selection of site, survey of existing future facilities, population trends, education and research programs, type and size of structure needed and financial status for construction and operation. It should be apparent now that *many* people helped to plan and build Mercy Hospital. The outcome of this coöperative planning was demonstrated by the enthusiasm, interest and active participation of all committee members in the departmental meetings. In reviewing the value of this kind of planning the following comments may be made:

1. The purpose for which the meetings were held was accomplished. Decisions were made which gave the architect opportunity to proceed with his plans.
2. Enthusiasm and interest strengthened desirable personnel relations.
3. Interdepartmental relationships were emphasized and unity of purpose was recognized.
4. Exploration of policies and procedures beyond the hospital's boundary was challenged.
5. The philosophy influencing policies and procedures in departments was defined.
6. A feeling of "belonging" was instilled in the minds of a great number of hospital personnel.
7. The preparedness and qualifications of leadership in departmental supervisors was demonstrated.

While the need for planning and organizing has been emphasized here throughout, it is also important that proper coördination of activities be maintained during the planning and building stages. Regular followup of all details in execution of plans, with the proper selection and placement of equipment, is basic to the successful completion of any building project. Finally, keeping the hospital family and the public informed of the progress during the various stages of building will promote a greater feeling of belonging and deepen the interest, enthusiasm and generosity of all. ★

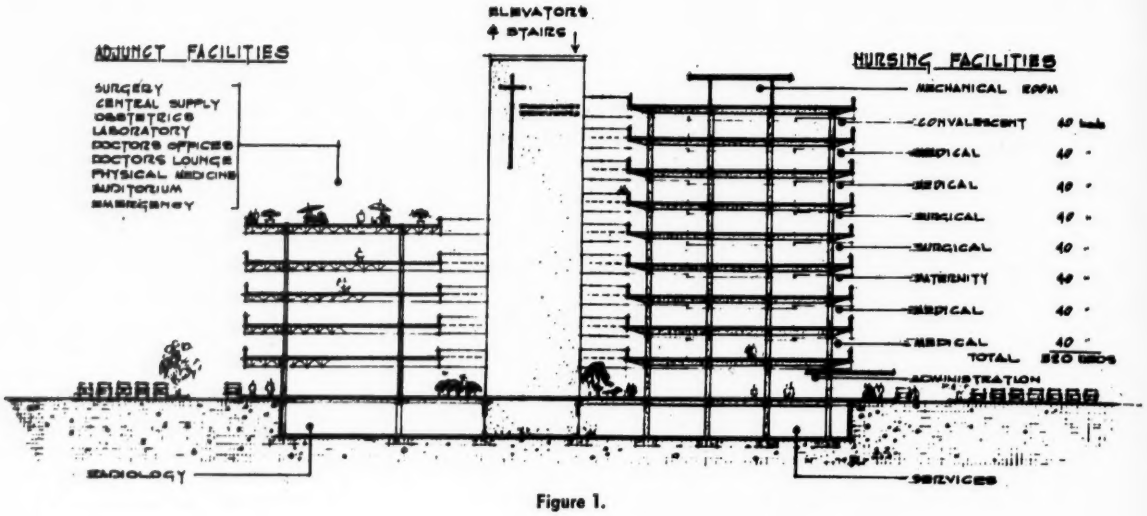


Figure 1.

STRUCTURAL ECONOMIES

by JAMES S. MOORE

EACH YEAR the Hospital Division at Charles Luckman Associates selects a phase of hospital planning, design or engineering for research and study. This program differs from other normal architectural and planning research on current projects in that there is no client. The purpose of this research program is to keep the planning and design of hospitals current with the rapid progress of medical techniques and to be sure hospital projects are benefiting from similar progress in other industries and services as, for example: construction, food service, mechanical and structural engineering.

One of these special research programs recently was devoted to an intensive study and evaluation of the structural systems and concepts for hospitals and medical buildings. This subject was chosen because structures being used for most hospitals were imposing penalties in terms of costs of construction and operation.

The research program began with an analysis of the most economical structural system for each of the major areas of the hospital. The first study was limited to nursing units since these units comprise a large area of the hospital and, in the larger hospital projects, are usually multi-storied buildings. Initial investigations proved enlightening, indicating several different structural systems that would be practical for these hotel-like structures. The most inexpensive structural schemes took advantage of the similarity of each floor level, the relatively small rooms, the short ceiling spans required to support and enclose the patient rooms, nurses stations, utility rooms, bathrooms, storage and charting areas of a nursing unit. Construction cost analyses for these structural systems indicated a variance of as much as 71 cents per square foot for the structure alone. This, of course, would represent a sizeable savings on a multi-story hospital building.

Several structural systems incorporating the most efficient designs were then developed by engineers on the research project. These systems naturally vary since they must be flexible enough to adjust to different nursing unit plans, site conditions and code requirements. Reinforced concrete and fireproofed steel systems were included. Fire protection of the structure, of course, is very important where patients are confined to beds.

The study indicated that construction costs could be further reduced by using exterior wall material similar to that used on many office buildings and hotels. Most hospitals evaluated were using a heavy structural wall of masonry or concrete. These heavy walls imposed extra weight penalties on the structural systems, and, in areas where earthquake forces must be overcome, this weight penalty was severe and costly.

Up to this time, lightweight walls had not been approved by the Public Health Service for hospitals using government funds for construction. Upon presentation of this research information to the U. S. Public Health Service, however, this regulation was changed. Grossmont Hospital in San Diego became one of the first Hill-Burton hospitals constructed to use the lightweight exterior walls.

Research on the structural systems next centered on that hospital area containing the surgeries, delivery suites, laboratories, x-ray, physical medicine, emergency and other outpatient oriented services. It already was apparent that the most economical structural systems for the smaller rooms of the nursing units would impose too rigid restrictions upon the planning and layout of these adjunct areas. The most functional plan arrangement for these departments would require a larger column-free area.

Upon further investigation and analysis, it was indicated that these spaces and functions could be best accommodated in areas with relatively few columns, similar to the type of space used for a super-market, garage or industrial plant. For many years, however, hospital planners have been placing the nursing units over these adjunct facility areas, thereby warping and twisting their plans to accommodate many columns, plumbing shafts and ducts serving the floors above. At

the same time, there is no regulation indicating that the adjunct facility area must be of heavy fireproof construction, unless, of course, the area is located within or under nursing units where patients are confined to beds overnight. Therefore, in order to save the cost of fireproofing and to enable the planners to make more efficient layouts of the adjunct facilities, it was decided that the best structural system for the adjunct facilities would be lightweight steel or pre-stressed concrete.

Thus far, the research program had developed two basically different structural concepts for two important areas of the hospital. Could these two concepts be married into the same functional structure? This question was applied to specific projects, and it was found that not only were the two concepts compatible but also that the marriage would work quite well. Mechanical and electrical engineers were very pleased with this grouping of facilities. Considerable savings also were made possible by grouping all the highly complex adjunct facilities in one area. Plumbing and duct lengths were reduced. Nor was it necessary any longer for the supply and drain lines for the nursing units to penetrate the surgery and delivery suites.

The most important advantage, however, was the great flexibility and freedom gained in planning the areas. Considerable space was saved, and the functions of the department became the determining factors rather than column spacing or drain lines.

A further refinement evolved during planning was the separation of the kitchen, dining room, employe lockers, storage, mechanical equipment and other service functions. These facilities, it was shown, could be adequately enclosed in an industrial type building. Such a structure would be exceedingly flexible to plan and expand and would cost much less than the rest of the hospital construction.

Theory in Practice

Since completion of the research program, these structural studies have been carried into the design of various hospital building projects. For example, plans are currently being prepared for a 300-bed hospital with a large outpatient department such as required by many hospitals serving military installations or insurance programs with heavy clinic and outpatient loads. Instead of the more conventional grouping of these facilities into a 12-14 story, fireproof structure, certain structural concepts developed during the research program are being applied (See **Figure 1**).

The adjunct facilities, for instance, have been grouped into a five-story building of lightweight steel construction. The nursing units have been placed in a nine-story structure, thereby taking advantage of the most efficient structural system for multi-story hotel-like units. The ground floor is devoted to administration, admissions, lounges, lobby and other visitor-oriented facilities. In short, there is in effect a five-story medical building and a nine-story nursing unit building joined togethed by a tower unit which allows both vertical and horizontal circulation between the two buildings. This circulation tower also will be so constructed as to form the transition between the two buildings required by the fire marshal so that the fire protection and rating for each of these two buildings can be different.

Ease in Adaptation

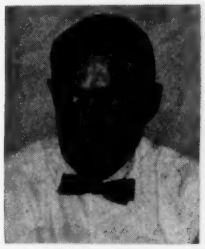
In addition to a considerable savings in construction costs by reducing the height of the buildings, eliminating the heavier fire protection, and being able to plan more functionally for the building which incorporates the adjunct facilities and the services, there are other important aspects and advantages to be considered. One of these is future expansion. Buildings joined together in this manner can be easily expanded horizontally or, if site conditions dictate a vertical solution, this, too, can be accomplished with far greater ease than if all units and facilities were encompassed in one basic building.

Another important advantage for clients, and one which is equally important to the communities and the areas which they are serving, is that by building two lower structures instead of one 14-story building, eight months to a year can be saved in construction time. It is also possible and feasible under such an arrangement that the adjunct facility area, including the outpatient services, could be opened several months before the hospital itself.

Factors in Analysis

The research program had indicated a separate structural concept for each of three separate hospital areas. This does not mean, however, that all of these structural concepts should be advocated or incorporated into every general hospital plan. Obviously there are many other factors which must be analyzed and given due consideration —such items as the size of the hospital, the master plan for expansion, the budget and the topography, orientation and configuration of the site.

But the results of this research program would appear to dictate the serious consideration, study and re-evaluation of all the aspects of each particular hospital, so that every advantage may be made of the most modern and progressive medical and building techniques. Hospitals cannot help but benefit by a reduction in construction and operating costs. The research program's structural concepts already have been applied to various building projects, including the construction of the Sisters of Charity Providence Hospital in Anchorage, Alaska (HOSPITAL PROGRESS, March, 1960). In each instance, the structural economies effected have proved most satisfactory to all concerned. ★



James A. Moore is vice-president and a partner-in-charge of all medical and hospital facilities for Charles Luckman Associates, Los Angeles, Calif. Mr. Moore is responsible for developing and planning new concepts in the layout and operation of medical facilities and monitors all design work and drawing production. He is a member of the American Association of Architects, and a past-president of the Architects Section of the Western Hospital Association. He also contributed an article for the Special Construction Issue of HOSPITAL PROGRESS in March, 1960.

Medical Advances Influence Planning

by **ARTHUR A. GLADSTONE, M.D.**

THE DAILY ACTIVITIES of the Medical Scientific Staff of every hospital are based on a sound background of theoretical knowledge which they are applying to actual clinical problems. This knowledge is rapidly changing and expanding. The digestion and evaluation of this knowledge and its prompt application in rendering medical service to patients is a responsibility of the medical profession. The rate at which progress is being made, however, has made it difficult for a hospital and its staff to keep abreast of developments and to adapt to changing needs in functional and structural plans.

While serving as Coördinator of Medical Education at one of the teaching hospitals at the University of Vermont Medical Center, I worked very closely with the administration, architects, consultants, sister superior, sisters in all nursing areas, and with chiefs in all services in planning for the growth and development of the hospital. While it is good to be aware of how and in what areas other general hospitals are meeting challenges in patient care, it readily becomes apparent that each hospital must adapt plans to meet its own particular needs. These plans will depend on the size of the hospital, the community needs, nature of its staff in training and interest, the attitude of the governing body to challenges in scientific, sociologic, and economic problems, and its attitude toward medical education and sound scientific research.

Planning in functional and structural requirements is a continual process. The planning team must repeatedly take a new look at problems, anticipate future needs years in advance, and must keep good working relationships with other hospitals. My obligation in this team approach was to point out how and where we had to incorporate new medical advances affecting patient care in our structure, so that our staff could continue to bring highest type care to all patients. The areas that concerned this hospital most in recent, present, and future planning included: 1. Special facilities for educational and research objectives. 2. Changes in space and structural requirements for certain ancillary services. 3. A long-term illness unit, with rehabilitation center. 4. The attitude toward mental illness. 5. Special programs related to cancer cure, clinical research, health education and new clinics. 6. Increased emphasis and demands in ambulatory care, including doctors' offices. 7. New instruments and equipment possibly affecting hospital construction.

Medical Education and Research: I can think of no field where service, education, and research are so closely related as in medicine. I recall when in this hospital medical education and research was considered a luxury, whereas today the public and the hospital trustees as well as the profession recognize that good medical education and good scientific research are essential to good medical care. We recently completed an entire floor with N.I.H. participation, which is used exclusively for research. We had no difficulty with this application because in each of our clinical units we have men who are oriented in training and time to test ideas that they may conceive while working at the bedside. This spirit prevails in the hospital and is a prerequisite to any research planning. It is also important that these men in research projects be well integrated with the experienced clinicians on our staff. They are and by coöperation with the college of medicine they have the freedom in time and security to carry on this work.

This same staff also has an obligation to train people in the best methods of collecting and evaluating data and in testing conclusions made. For these purposes the hospital in its planning has provided conference rooms, an auditorium, special examining rooms in each unit, libraries, lockers and call beds for night duty. Basic sciences, physics, chemistry, mathematics are becoming so essential to medical sciences, that our hospital planning must provide for a free flow of information and some of these scientists are being housed in the hospital. The application of every resource of the scientific method to problems presented by patients is a big change from the doctoring that our family doctor gave us 30 years ago.

Functional Adjustments

Both N.I.H. and the Rockefeller Institute have demonstrated their belief that medical research can be carried out more efficiently in an institution associated with medical care and medical education. In this setting the scientist, physician, and student are all continually reminded of problems involved in medical care. Before the research floor was available men were scattered in various nooks and corners

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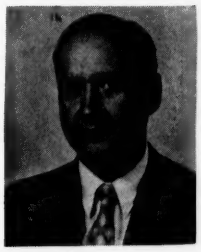


and they thought at first they would like to be in proximity to their patient area. It seems beneficial now to have all men in the same area because they have common requirements related to special gas, water drainage, various electrical needs and ventilation. Construction with moveable partitions and peripheral plumbing makes space allocation, based on individual project needs, much easier.

Ancillary Facilities and Services: These services must be adaptable to functional and structural adjustments. With the increase in emphasis on ambulatory care and early ambulation and its resulting greater turnover, there has been a marked increase in use of diagnostic and therapeutic facilities. We may have some difficulty with architects who were guided by formulae of yesterday when planning for tomorrow's requirements in clinical pathology and radiology facilities. The amount of service space required today per hospital bed is more than double that of 10 years ago.

Isotopes: The U. S. Atomic Energy Commission reported in January, 1961, that there were 2,628 medical institutions and physicians licensed to use radioisotopes, and the use of isotopes in medicine jumped 67 per cent in four years. A physicist has been added to the radiological staff of the two local teaching hospitals and he will be working actively with the medical staff in the development of isotope therapy and its diagnostic application. We are already using radioisotopes to scan for localization of brain tumors and liver lesions, and investigation is being made to determine its application for x-ray studies of the pancreas and spleen.

One of the main problems in hospital construction is protection against radiation. This involves shielding of personnel, if any of the radioactive material is lying around in containers, and the further problem of protection if any of the material is accidentally spilled. Units must be designed so that contaminated areas may be cleaned up quickly and easily. Spilled material may be tracked around, exposed to instruments, and is apt to interfere with clinical work and testing. Much thought should be given to wall and floor surfaces especially, and any existing surfaces of highly porous material such as wood and concrete should be covered to minimize the possibility of contamination in case of spills. There is, of course, the problem of possible contamination in tanks and drainage. A typical hospital unit consists of two rooms, one for storage, dilution and dispensation and the other for uptake measurements and radio assay. Prime consideration should be given to any possible interference with radio assay analysis and radiation measurements. To prevent this the unit should be located some distance from the x-ray department and especially from the x-ray therapy unit. Radium is to be feared most, whereas the x-rays are not as troublesome because they are not as penetrating and are substantially absorbed in the concrete walls of the building.

More Space, Adjacent Units

Functional Interrelationship: When functional interrelationship is required for ancillary services, it calls for architectural planning. An example is the advisability of having the emergency unit adjacent to the x-ray department. Radiological techniques of aortography and angiocardiography call for planning in conjunction with internists and surgeons interested in diagnosis. Architects must be made aware of possible new equipment and how structural planning may be affected. They must know in advance, for example, if facilities will be able to accommodate installations of automatic electronically controlled equipment for processing x-ray films. Our department is interested in the possibility of closed circuit television which would be invaluable for presentations at medical staff conferences and for consultations from one hospital to another.

Operating Suite: Longer and more complicated surgery, especially as related to cardiovascular, neurological and pulmonary disease, is placing more demands on operating room facilities. We are apt to have trouble with architects who always start off with the idea that a minor operating room involves a *little* doctor, with *little* patients and *little* equipment. More and larger rooms are required for the equipment and personnel necessary in open heart surgery, and even though the surgeon may take only a few minutes for the definitive operation the operating room may be tied up all day with equipment and preparation. The heart pump is a mechanical marvel but needs much attention, and there must be floor space for the whole team. We do have monitoring equipment but as yet no separate adjacent control room. Our anesthetists still like to watch the patient but there is no question that as equipment is perfected more and more value will be attached to it in detecting early changes needing correction. Trained observers in the control room watching the cardioscopic recorders with the running oscillograph will be in a position to observe the continuous heart behavior during the operation. Our present space already shows major lack of planning because we do not even have adequate electrical outlets, nor insulated underground circuits to eliminate the danger of spark discharges.

Inhalation Therapy Service in Relation to the Intensive Care Unit: One needs only to walk around most general hospitals and observe the way oxygen is ordered and administered in order to realize the necessity of an organized, properly directed and supervised service. This, along with the increasing demands for intermittent positive pressure breathing, and the realization that equipment must be in good order and always available when needed, and the fact that our anesthesia service was willing and ready to direct it, were all factors responsible for the creation of this service. The space needed for storage, the directors office and technicians' area are all important in construction planning.

Everyone agrees with the philosophy of *Progressive Patient Care* and it is

not new to realize that the degree of illness is more important than the category of illness. The arguments for, and new ideas in planning intensive care facilities have been well presented and understood. The problems involved, the cost, admitting policies, experiences of others, and the type of plan best suited for the individual hospital is another matter. The needs for and the planning of these areas depend upon the size of the hospital, nature of services offered, and complexity of surgery preformed. For this hospital with 220 general beds and 80 for long-term illness, a combined recovery and intensive care unit in the space that must be reconverted for its use seems the best plan. Today I would favor such a combined area, for efficiency and economy, even if we were planning a newly constructed area. In places where I saw separate units I was unable to tell how the staff determines where the recovery room care ends and when intensive care should begin. Our plan includes the creation of a recovery room with six to eight beds in an open ward area that allows for adequate space around each bed and with central nursing observation. An effort will be made to eliminate portable equipment that creates problems of storage, transportation and accident. There will be piped oxygen and piped central suction with mounted and fixed blood pressure apparatus. Because our anesthesia department favors regional and Fluothane anesthesia, and with this agent patients are fully awake and react before leaving the operating room, not all of our patients need go to the recovery room but may well go directly to the intensive care unit. This area will be immediately adjacent to the recovery room with four bed, two bed, and private room accommodations. The same type of nursing staff qualifications are required in both categories and by combining these required areas we can take care of more sick people with fewer highly trained personnel. We do not now have enough qualified nurses to take care of our lobectomies, gastrectomies, open heart or brain surgery, our C.V.A. or cardiac cases.

We know why surgeons and anesthetists like the recovery room adjacent to the operating suite and we know that all patients needing oxygen, intermittent positive pressure breathing, transfusions, hypothermia, or constant trained observation, have the same problems in equipment and know-how. Because we established an inhalation therapy service under the direction of the anesthesia department, the advantages of having all very sick patients adjacent to this service seemed very apparent.

Emergency Unit: The number of patients seen in this area is increasing each month. Present construction will give us a much greater area with multiple partitions, a plaster room area, rooms for special examinations, an observation room and a room for the house staff member on call at night. This is necessary to meet the varied responsibilities and demands of modern medicine. Auto accidents are listed fourth under causes of death. Many patients come directly to the emergency area, completely avoiding any M.D. Many doctors find it convenient to just refer cases to the emergency room when they do not care to handle them. It, therefore, really necessitates a diagnostic screening program. Our new emergency unit is being planned adjacent to x-ray and is staffed 24 hours a day.

Planning for Modern Needs

Photography: Adequate space and planning for photography is too often neglected. It is a must in the modern hospital in connection with objectives in teaching, publications and exhibits.

Space does not permit discussion of such things as *Recreation Area* and *Religious Atmosphere* as therapeutic tools. But planners must remember that they are.

Ambulatory Care and Outpatient Facilities: This includes clinic area, emergency rooms and offices for private practice. Demands in these areas are continually increasing. Hospitals are more and more looked upon as health centers, because there is growing emphasis on prevention and early detection of cancer and other diseases; because there is increasing interest by the public in health education (leading to motherhood classes, well baby clinics, cardiac work classification clinics, etc.), and because of the growing interest in extension of hospital facilities to the home.

It would seem most logical for planners to direct attention to ambulatory care. Such a program frees beds and allows hospitals to serve more beds wherever they are. It is logical because, with the extension of program to patient wherever he may be, it provides the type of continuity of care that is a help to both the objectives of the physician and the patient. It also helps to integrate the general practitioner or family doctor into the hospital program, and he helps to make the general practice clinic a screening area for the specialty clinics. Such a program will do much to redefine the family doctor to the public. I noticed that students were attracted to the family doctor, and perhaps because for the first time they began to understand his responsibility. The well-oriented family doctor in outpatient departments, nursing homes, and home care programs has done much to eliminate the fragmentation of patient care into small specialty interests, and has demonstrated the actual economy in continuity of medical care. This has also done much to strengthen coöperation between family doctor and specialist. It creates in my mind a new type of family doctor who is a specialist in his own right.

An ideal ambulatory area would house doctors' offices organized on clinical unit bases for maximum use, efficiency and economy. It should include at least for demonstration, a family doctor practice unit. All ambulatory patients, regardless of their ability to pay, would enter the same door, on an appointment basis, for registration. The organized speciality clinics would be so coördinated in schedule that the same area and equipment used for interviewing and examining private cases would be used for the free or partial pay patients. This seems logical because the same staff is involved in the care of all patients. The student, intern and resident should be incorporated in this program and thus strengthen the undergraduate and postgraduate education. This facility should have student lounges, conference rooms, reading rooms for students on call, and the general hospital library to make it a truly active area for study and practice.

In small community hospitals I favor space for doctors' offices and, if possible, the development of group practice. In larger or teaching hospitals I favor offices for the head of each clinical unit and for a selected group on his staff. These men, by combining clinical medicine and basic science in their training, and by displaying superior competence in both fields, are needed as the "backbone" of a hospital program. They are

needed to inspire students, and house staff and for the education and training of these men, which now becomes a joint responsibility of the hospital and medical school. These men interpret current medical advances to the entire staff, helping them to deal with modern complexities in medical care. The university hospital encourages members on a geographic full time basis. While these doctors may see private patients in their offices in the hospital, they must not be led away, by the opportunity for financial gain, from their real reasons for being there.

These objectives are not necessarily incompatible with an office building incorporated in hospital planning which will allow any member of active staff who wishes to be so located, or for group practice worked out on a clinical divisional basis. Such plans have actually helped to bring in and support men needed for the so called "backbone" staff. Some will undoubtedly say that the hospital is meddling in the practice of medicine. There is, however, a difference between medicine being practiced *in* a hospital and *by* a hospital. Men giving care should be brought closer to the facility in which it is given.

Long-term Illness: Our staff has long been involved in acute and general hospital care, outpatient services, a rehabilitation center program and even a limited amount of home care. They agree that long-term illness belongs in a general hospital. It is interesting to observe how the spotlight goes on POLIO with capital letters, then to ARTHRITIS, then REHABILITATION, and now the needs of the AGED and CHRONIC SICK.

Integrating Long-term Units

We have just completed an 80-bed unit for long-term illness. The area is much like that of a general hospital because the chronically ill require almost the same type of care. The unit will have a separate medical director and will be closely integrated with the general hospital and our recently constructed intensive rehabilitation unit. Most of the area is planned to be a truly active hospital, with controlled beds for clinical research. Emphasis will be placed on diagnosis and treatment, nursing care and rehabilitation and getting the patient out to return to his own home, to a nursing home, or some domiciliary facility. Varying stages in progress of disease make it rather easy to transfer patients between acute, long-term, nursing home or even home care programs. Statistics in death rate, average length of stay, autopsy rate, number of examinations and consultations reflect a rapid increase in quality of care in chronic disease units that are closely integrated with a general hospital program.

We started out with a separate rehabilitation unit and plans for a separate chronic illness unit. To us the boundary lines between the two units and their objectives are becoming more and more blurred. I believe these should be merged into one functional long-term unit. This new long-term unit will open in April and it is bound to ease the demand on our acute beds. Our hospital patient care study committee informs us that about 20 per cent of patients in the general areas are in this category and could be more properly cared for in a long-term illness unit.

Nursing Home: Some of the beds in the long-term unit will be used for a geriatric group needing nursing care. Our staff has been slow to agree with the same interest and enthusiasm that a nursing home should also be placed adjacent to and integrated under the medical department of the hospital. We place these patients in nursing homes because they require special services but we are not always pleased with the quality and quantity of these services. I hope the beds designated in the nursing home category will allow us to demonstrate a program based on the needs of patients. This is the type of functional and structural planning necessary to extend the usefullness of the hospital as a community health institution.

Mental Illness: Only one of our teaching hospitals has advanced to the stage of building plans which include care of the mentally ill. New concepts in psychiatry stress the importance of early and intensive treatment in order to avoid longer and more costly care. Mental clinics, when included in outpatient programs, help in early recognition and early treatment which may result in either a cure or arrest of the illness. Many of the patients treated in this way may never require hospitalization. People will more willingly accept hospitalization in a general hospital because it doesn't carry the stigma that is still attached to the designated mental hospital. I have had no experience in planning such an area, but feel that this area in a general hospital should have more attention as related to architecture, color, furnishings, and that much emphasis should be placed on a home-like atmosphere.* The facility should be planned so that patients can benefit not only from the usual diagnostic and therapeutic facilities, but should also be integrated with the *rehabilitation* and *recreation* facilities. I know that the therapists wish their patients to be encouraged to share in group activities in lounges and in occupational therapy areas. There are many who believe that the general hospital should and will eventually replace the mental hospital.

Humility and Coöperation

We have a tremendous responsibility in planning for the complete and coördinated health care of our community. This is particularly difficult in the face of the scientific, economic and social changes that are occurring so rapidly. In our planning we had to take into account the College of Medicine, the other teaching hospital, and the whole concept of the Medical Center. We speak about the idea and desire of giving the best to every patient and yet eliminate duplication of services and equipment, and to avoid unnecessary increase of hospitalization costs. *This sounds good,* but to achieve it will require a spirit of humility in administration and staff. Enthusiasm for an idea is barren unless it is followed by an earnest and sincere consideration of the basic issues involved and those interested must conceive and adopt policies that will contribute to the realization of the objectives defined. Coöperation in planning is good, especially for nonduplication of staff pattern, joint residency and medical education programs, and for specially selected programs. Non-duplication in other facilities is a more difficult matter because duplication started when the different general hospitals started.

With all this planning and coöperation the DeGoesbriand Memorial Hospital has not lost its individuality or what I prefer to call its personality. The warm, friendly and religious environment of the hospital is a tribute to the Religious Hospitallers of St. Joseph who created it. ★

*See R. Jackson's "Milieu Therapy" elsewhere in this issue.—*Ed.*

Catholic Hospital Construction in 1960

by **DAN ROBERTS • St. Louis, Mo.**

CONSTRUCTION ACTIVITY among Catholic hospitals remained at a record level during 1960. More than 5,000 beds were added during the first 11 months of the year, and as of December 1 construction was progressing on 203 projects which, when completed, will add almost 14,000 more beds to the Catholic hospital system. An additional 15,600 beds will eventually be added by projects which have been announced, but for which construction has not yet started.

Such expansion requires a tremendous dollar outlay. Projects completed in the first 11 months of 1960 had a price tag of $151 million. The projects under construction on December 1, 1960, will have a completed cost of $404 million. And an additional $440 million is earmarked for projects now on the drawing boards.

For the second straight year the East North Central States showed the greatest construction activity in projects completed, under construction, and planned. This area which includes the states of Ohio, Indiana, Michigan, Illinois, and Wisconsin completed 32 projects, adding 1,252 beds at an expenditure of $47 million. Current construction in this area will add another 2,660 beds at a cost of $88 million. Plans have been announced for an additional 42 projects costing $127 million to eventually add another 3,500 beds to existing hospital facilities.

Illinois remains the most active state in both projects completed and under construction. The Prairie State added 500 beds at a cost of $15 million, and is spending $50 million on current construction to add another 1,400 beds. California has the most ambitious plans with 19 projects in planning, which will cost $45 million and add 1,660 beds to its growing hospital requirements.

The largest single project completed in 1960 was the $8 million St. Francis

Table 1. Catholic Hospital Construction By Region (As of December 1, 1960)

	NUMBER OF PROJECTS REPORTED			NET BED GAIN REPORTED			COST REPORTED		
	Completed in 1960	Under Construction	Planned	Completed in 1960	Under Construction	Planned	Completed in 1960	Under Construction	Planned
New England.....	10	9	7	390	536	785	$7,878,000	$16,658,000	$22,840,000
Middle Atlantic....	17	25	28	907	1,183	2,627	22,836,000	31,865,000	79,120,000
South Atlantic.....	2	11	17	175	866	1,301	3,546,000	35,136,600	40,595,000
East North Central...	32	39	42	1,252	2,661	3,517	47 405,000	88,307,000	127,144,000
East South Central...	2	6	4	152	373	271	2,469,000	7,742,000	3,450,000
West North Central..	16	39	17	774	1,574	1,205	22,335,000	61,279,000	26,823,000
West South Central..	8	9	11	876	829	1,276	19,068,000	28,058,000	30,837,000
Mountain.....	11	13	11	207	733	741	8,983,000	19,929,000	26,100,000
Pacific.....	10	17	25	355	1,159	1,863	6,022,000	36,362,000	50,285,000
Total U.S.....	108	168	162	5,088	9,914	13,586	$140,542,000	$325,336,000	$407,194,000
Canada.....	9	35	20	557	3,844	2,020	11,233,000	78,475,000	33,035,000
Total U.S. and Canada.....	117	203	182	5,645	13,758	15,606	151,775,000	403,811,000	440,229,000

Hospital in Tulsa. This modern new facility increases the number of hospital beds in the Oil Capital by 300, and plans are under way to eventually double this capacity. The new $6.5 million wing completed at St. Joseph's in St. Paul added 217 beds to existing facilities. St. Francis in Pittsburgh added a 300-bed wing at a cost of $6 million.

Although reports from Canadian hospitals are not complete, considerable construction activity is taking place in that country. Nine projects were reported completed in 1960, adding 557 beds to the Dominion's hospital facilities. Another 35 projects, currently under construction, will increase Canada's Catholic hospital bed capacity by 3,850. These projects will cost more than $78 million. The Province of Ontario is adding 1,600 beds at a cost of $38 million. Quebec is spending $28 million to add 1,540 beds.

In general, the number of projects completed in 1960 showed only a slight gain over 1959. However, the number of projects under construction and in planning showed a marked increase during the year. Although a portion of this increase is due to more complete reporting of hospital construction by the motherhouses of the various orders, news items collected from all over the United States and Canada indicate that Catholic hospital construction will continue to be an important factor in the growth of the two nations. *(cont. next page)*

Table 2. Major Catholic Hospital Projects Completed in 1960 ($2,000,000 and over)

	Hospital	Type of Project	Net Bed Gain	Cost
Tulsa, Okla.	St. Francis	New Hospital	300	$8,000,000
Pittsburgh, Pa.	St. Francis	New Wing	300	6,600,000
St. Paul, Minn.	St. Joseph's	New Wing	217	6,500,000
Evergreen Park, Ill.	Little Company of Mary	New Wing	145	5,000,000
Danville, Ill.	St. Elizabeth	New Wing	180	4,000,000
Huntington, W. Va.	St. Mary's	New Wing	175	3,500,000
Green Bay, Wisc.	St. Mary's (West Side)	New Hospital	155	3,400,000
Steubenville, Ohio	St. John's	New Hospital	104	3,250,000
Port Washington, Wisc.	St. Alphonsus	New Wing	45	3,224,000
Lewiston, Maine	St. Mary's	New Wing	125	3,000,000
Granite City, Ill.	St. Elizabeth	New Wing	100	3,000,000
Checktowaga, N. Y.	St. Joseph's	New Hospital	100	3,000,000
Beaver Dam, Wisc.	St. Joseph's	New Wing	66	3,000,000
Hammond, La.	Seventh Ward General	New Hospital	120	2,880,000
Cincinnati, Ohio	Good Samaritan	New Wing	82	2,800,000
Halstead, Kans.	Halstead	New Wing	40	2,800,000
Estherville, Iowa	Holy Family	New Wing	33	2,701,000
Lancaster, Pa.	St. Joseph	New Wing, Chapel, Auditorium	—	2,700,000
Amarillo, Texas	St. Anthony's	New Wing	140	2,500,000
Oklahoma City, Okla.	St. Anthony	New Wing	100	2,500,000
Hamilton, Ohio	Mercy	New Wing	32	2,500,000
Saginaw, Mich.	St. Mary's	New Wing	60	2,200,000
New Iberia, La.	Iberia Parish	New Hospital	150	2,117,000
Kenmore, N. Y.	Mercy	New Wing	225	2,000,000
San Bernardo, Calif.	St. Bernardine	New Wing	135	2,000,000
Pittsburgh, Pa.	Vincentian	New Chronic Hospital (Replacement)	68	2,000,000

Table 3. Canadian Hospital Construction By Provinces (As of December 1, 1960)

	PROJECTS COMPLETED IN 1960			PROJECTS UNDER CONSTRUCTION			PROJECTS IN PLANNING		
	Number Reported	Net Bed Gain Reported	Cost Reported	Number Reported	Net Bed Gain Reported	Cost Reported	Number Reported	Net Bed Gain Reported	Cost Reported
CANADA									
Alberta	0	0	0	3	37	$550,000	1	4	$250,000
British Columbia	0	0	0	3	119	1,780,000	0	0	0
Manitoba	1	0	$13,000	2	62	477,000	1	500	2,500,000
New Brunswick	0	0	0	0	0	0	2	118	1,775,000
Newfoundland	0	0	0	1	100	1,500,000	0	0	0
Nova Scotia	0	0	0	1	338	6,000,000	0	0	0
Ontario	3	279	5,310,000	11	1,600	38,206,000	7	820	18,515,000
Prince Edward Is.	0	0	0	1	10	150,000	0	0	0
Quebec	4	241	5,360,000	11	1,540	28,020,000	8	573	9,920,000
Saskatchewan	1	37	550,000	2	38	1,846,000	1	5	75,000
Yukon & N.W. Tr.	0	0	0	0	0	0	0	0	0
Total Canada	9	557	$11,233,000	35	3,844	$78,529,000	20	2,020	$33,035,000

PROJECTS COMPLETED IN 1960*

New Hospitals	11
New Hospitals (Replacements)	5
New Wings and Additions	44
New Service Buildings	40
Major Renovation Programs	8

UNDER CONSTRUCTION 12/1/60*

New Hospitals	14
New Hospitals (Replacements)	15
New Wings and Additions	80
New Service Buildings	43
Major Renovation Programs	16

PLANS ANNOUNCED AS OF 12/1/60*

New Hospitals	24
New Hospitals (Replacements)	22
New Wings and Additions	82
New Service Buildings	28
Major Renovation Programs	6

*Type of projects reported as of December 1. (United States only)

Catholic Hospital Construction Projects

State and Region (As of December 1, 1960)	PROJECTS COMPLETED IN 1960		
	Number Reported	Net Bed Gain Reported	Cost Reported
NEW ENGLAND			
Maine	1	125	$3,000,000
New Hampshire	0	0	0
Vermont	0	0	0
Massachusetts	6	168	2,000,000
Rhode Island	0	0	0
Connecticut	3	97	2,878,000
TOTAL NEW ENGLAND	10	390	$7,878,000
MIDDLE ATLANTIC			
New York	8	460	9,105,000
New Jersey	3	17	1,625,000
Pennsylvania	6	430	12,106,000
TOTAL MIDDLE ATLANTIC	17	907	$22,836,000
SOUTH ATLANTIC			
Delaware	0	0	0
Maryland	0	0	0
District of Columbia	0	0	0
Virginia	0	0	0
North Carolina	1	0	46,000
South Carolina	0	0	0
Georgia	0	0	0
Florida	0	0	0
West Virginia	1	175	3,500,000
TOTAL SOUTH ATLANTIC	2	175	$3,546,000
EAST NORTH CENTRAL			
Ohio	10	333	12,469,000
Indiana	3	34	1,522,000
Illinois	9	496	15,428,000
Michigan	4	103	5,100,000
Wisconsin	6	286	12,886,000
TOTAL EAST NORTH CENTRAL	32	1,252	$47,405,000
EAST SOUTH CENTRAL			
Kentucky	1	93	1,069,000
Tennessee	1	59	1,400,000
Alabama	0	0	0
Mississippi	0	0	0
TOTAL EAST SOUTH CENTRAL	2	152	$2,469,000
WEST NORTH CENTRAL			
Minnesota	2	282	7,800,000
Iowa	3	110	4,445,000
Missouri	4	220	2,643,000
North Dakota	1	17	245,000
South Dakota	0	0	0
Nebraska	1	60	1,800,000
Kansas	5	85	5,402,000
TOTAL WEST NORTH CENTRAL	16	774	$22,335,000
WEST SOUTH CENTRAL			
Arkansas	0	0	0
Louisiana	2	270	4,997,000
Oklahoma	2	400	10,500,000
Texas	4	206	3,571,000
TOTAL WEST SOUTH CENTRAL	8	876	$19,068,000
MOUNTAIN			
Montana	2	60	1,060,000
Idaho	0	0	0
Wyoming	0	0	0
Colorado	3	0	880,000
New Mexico	3	30	1,000,000
Arizona	2	15	1,543,000
Utah	1	102	4,500,000
Nevada	0	0	0
TOTAL MOUNTAIN	11	207	$8,983,000
PACIFIC			
Washington	1	0	470,000
Oregon	0	0	0
California	9	355	5,552,000
Alaska	0	0	0
Hawaii	0	0	0
TOTAL PACIFIC	10	355	$6,022,000
TOTAL U. S.	108	5,088	$140,542,000

Catholic Hospital Construction Projects

State and Region (As of December 1, 1960)	PROJECTS UNDER CONSTRUCTION			PROJECTS IN PLANNING		
	Number Reported	Net Bed Gain Reported	Cost Reported	Number Reported	Net Bed Gain Reported	Cost Reported
NEW ENGLAND						
Maine	0	0	0	1	125	$3,000,000
New Hampshire	0	0	0	0	0	0
Vermont	2	80	$1,730,000	0	0	0
Massachusetts	5	332	8,500,000	3	610	14,740,000
Rhode Island	1	100	2,500,000	1	NA	NA
Connecticut	1	24	3,928,000	2	50	5,100,000
TOTAL NEW ENGLAND	9	536	$16,658,000	7	785	$22,840,000
MIDDLE ATLANTIC						
New York	13	612	15,237,000	15	1,193	35,760,000
New Jersey	9	328	11,678,000	7	909	27,310,000
Pennsylvania	3	243	4,950,000	6	525	16,050,000
TOTAL MIDDLE ATLANTIC	25	1,183	$31,865,000	28	2,627	$79,120,000
SOUTH ATLANTIC						
Delaware	1	NA	NA	0	0	0
Maryland	3	498	25,500,000	1	81	8,000,000
District of Columbia	2	140	2,720,000	1	250	6,000,000
Virginia	1	0	315,000	2	150	4,195,000
North Carolina	0	0	0	1	100	1,950,000
South Carolina	1	10	166,000	3	140	3,250,000
Georgia	0	0	0	3	250	6,100,000
Florida	1	50	2,000,000	5	330	10,500,000
West Virginia	2	168	4,435,000	1	0	600,000
TOTAL SOUTH ATLANTIC	11	866	$35,136,000	17	1,301	$40,595,000
EAST NORTH CENTRAL						
Ohio	6	353	5,732,000	9	971	35,150,000
Indiana	5	381	16,685,000	4	150	5,500,000
Illinois	16	1,394	50,860,000	12	1,090	42,111,000
Michigan	4	139	3,957,000	6	796	15,847,000
Wisconsin	8	394	11,073,000	11	510	28,536,000
TOTAL EAST NORTH CENTRAL	39	2,661	$88,307,000	42	3,517	$127,144,000
EAST SOUTH CENTRAL						
Kentucky	0	0	0	1	0	450,000
Tennessee	2	253	5,200,000	1	56	500,000
Alabama	2	120	1,401,000	0	0	0
Mississippi	2	0	1,141,000	2	215	2,500,000
TOTAL EAST SOUTH CENTRAL	6	373	$7,742,000	4	271	$3,450,000
WEST NORTH CENTRAL						
Minnesota	7	280	10,147,000	3	195	4,633,000
Iowa	6	160	6,409,000	2	225	2,350,000
Missouri	11	677	27,811,000	4	163	5,050,000
North Dakota	2	169	4,269,000	1	NA	NA
South Dakota	3	56	1,199,000	1	50	1,200,000
Nebraska	5	0	3,488,000	3	317	7,090,000
Kansas	5	232	7,956,000	3	255	6,500,000
TOTAL WEST NORTH CENTRAL	39	1,574	$61,279,000	17	1,205	$26,823,000
WEST SOUTH CENTRAL						
Arkansas	1	0	1,114,000	1	50	1,000,000
Louisiana	2	410	6,950,000	2	100	3,400,000
Oklahoma	0	0	0	2	386	10,037,000
Texas	6	419	19,994,000	6	740	16,400,000
TOTAL WEST SOUTH CENTRAL	9	829	$28,058,000	11	1,276	$30,837,000
MOUNTAIN						
Montana	1	0	150,000	4	130	4,700,000
Idaho	1	0	100,000	2	40	1,000,000
Wyoming	0	0	0	0	0	0
Colorado	5	210	7,715,000	4	527	15,400,000
New Mexico	1	68	650,000	1	44	5,000,000
Arizona	3	300	7,764,000	0	0	0
Utah	0	0	0	0	0	0
Nevada	2	155	3,550,000	0	0	0
TOTAL MOUNTAIN	13	733	$19,929,000	11	741	$26,100,000
PACIFIC						
Washington	2	16	260,000	4	121	2,550,000
Oregon	2	78	2,650,000	1	50	2,000,000
California	12	975	27,952,000	19	1,667	45,565,000
Alaska	1	90	5,500,000	0	0	0
Hawaii	0	0	0	1	25	170,000
TOTAL PACIFIC	17	1,159	$36,362,000	25	1,863	$50,285,000
TOTAL U. S.	168	9,914	$325,336,000	162	13,586	$407,194,000

MECHANICAL DESIGN

by **EMIL M. SPINA***

A PERFECT STRUCTURE has never been designed, but much can be done to reduce unnecessary errors by early, deliberate, thoughtful planning and coöperation among the architect, engineer and owner of the structure. Such planning and coöperation is particularly important for the mechanical engineer charged with the design of the heating, ventilating, air conditioning, plumbing and electrical work of a hospital. For the hospital structure, while it embraces all the essentials of a hotel, also includes those facilities which allow the maximum application of medical and surgical skills. These conditions may conflict, and the engineer throughout must be keenly aware of the principles of medical techniques and hospital operations.

A hospital structure, like a hotel, has many bedrooms. Hospital bedrooms, however, house recuperating patients who quite often are in a weakened condition and susceptible to infections. The bedrooms enclosing these patients, therefore, must be designed free of crevices and surfaces that may harbor dust and bacteria. The same principle should be applied to mechanical services; the engineer should exert every effort to specify equipment that is self-cleaning or easily cleanable.

The heating equipment in a patient's room, for example, should either be completely free of cracks and crevices or be self-cleaning. Units that cannot be so designed should, as a last resort, at least provide easy access. At the present time, the ceiling radiant panel type of heating would appear to satisfy these requirements, in addition to its potential application for summer cooling.

Complete air conditioning is another current trend in hospital mechanical design. Not only have housekeeping costs been reduced by the introduction of filtered air into the premises, but there is also evidence that patient recovery has been expedited as a result, with a noticeable reduction in patient irritation and complaints and a corresponding lessening in requests for nursing attention. Such factors as these are hard to evaluate on a dollar and cents basis, but the premium benefits are self-evident: Year-round air conditioning should no longer be considered a mere luxury item. Of course, thorough economic studies should be made to ascertain the most suitable air conditioning equipment. The initial cost of this equipment, however, should not be used as the sole and final guide in making one's selection; operating and maintenance costs as well as depreciation also should be included in the careful evaluation.

Hospital air conditioning raises the question of air borne infection. As is well known, a new penicillin-resistant hospital type of staph has developed—one which seems to occur everywhere and under all conditions. Epidemiologists are inclined to believe infections are transmitted solely by means of "direct contact" between the carrier and the recipient, with little probability of infections being transmitted by airborne bacteria. Positive proof, however, is not available as yet. Hence, current thinking in this area is to design air conditioning systems so that a spread of infectious material throughout the hospital, by means of a duct work system, is reduced as much as possible.

This means that air conditioning systems should be installed according to a departmental or decentralized basis, ideally to the extent of providing separate systems for each unit or department. This arrangement would insure that air is not exchanged among unrelated areas and would augment the other aseptic procedures used by the nursing staff in the care of patients.

Under the departmental arrangement, the engineer should ascertain a general time schedule for the entire

*Mr. Spina, a consulting mechanical engineer, resides in Summit, N.J. A licensed professional engineer, he has worked on numerous construction projects including schools, apartments, office buildings and the $8 million Newark City Hospital.

hospital. The hospital business office, for example, may run only eight or 10 hours a day. The engineer might then suggest various control devices which would satisfy the requirements for that particular department during its working hours, while at the same time insuring the economical operation of the entire hospital on a complete 24-hour basis.

There are certain areas, of course, that will require special treatment. The Central Sterilizing area, for example, is often large and with a severe enough ventilation problem to justify special consideration both as to *time of operation* and *load.* Other special areas are the Operating and Delivery Suites. Here, due to the nature of the activities carried on in these areas, the ventilation equipment must assuredly remove odors, provide adequate conditioned air, control humidity and reduce the possibility of gas explosions by providing proper humidification. Extensive studies have been carried on in this field, particularly in England. Currently, the opinion is that the air in the room should be removed from ceiling to floor with a piston-like effect, providing clean air at head level and removing dust-laden air at the floor level. This ideal, however, is difficult to attain due to such variables as door openings, personnel movements and the thermal effect of lighting fixtures, people and apparatus.

Air Conditioning Economies And Heating System Problems

One detail of interest and potential economy to the hospital here involves the problem of re-circulation of the air. The use of combustible anesthetic gases in the operating room may make re-circulation potentially hazardous by increasing the combustible vapor concentration and in other ways contribtuing to an undesirable atmosphere. However, there is no reason for providing 100 per cent outside air when the room is not in use. If scheduled operations run six hours, for example, occupancy of the room, starting with morning preparations and ending with afternoon cleaning, may total only 10 hours. To provide 100 per cent outdoor air for the complete 24-hour period, when the real need is only for the 10 hours of actual use, means that the hospital (and the patient) is paying an unnecessary and wasteful premium.

Air conditioning design on a departmental basis also permits time, environmental and emergency variations. The individual nursing unit arrangement of ventilation equipment, for example, allows this equipment to operate independently of other systems, so that local situations may be readily accommodated. Thus, if a nursing unit containing cancer patients in advanced stages faces an odor problem, the ventilating system could be adjusted immediately for a complete removal of the air and replacement by outdoor air. In this instance, the engineer would design for a normal operation, with minimal make-up air, but have enough reserve in the heating and cooling coils to handle 100 per cent outdoor air for short periods of time.

Such suggestions sometimes are rejected because an administrator feels that any probable savings in this area are too small for consideration. Yet, if each department's operational cost could be analyzed by an engineer (the cost of heating, ventilating, etc.), the administrator would gain valuable cost accounting information that would delineate his operation, increase the accuracy of his budget analysis and pin-point the inefficient operations in his facility. It is as worth while to save $100 per year in the operation of an air conditioning system as it is to save $100 per year in the purchase of a particular item of medical supplies.

The heart of any heating system is the boiler. Here, again, planning and coöperation among architect, administrator and engineer can reduce waste and promote savings. For, although it is essential in any hospital heating system that stand-by units be provided, the selection need not invariably result in two units, each capable of the entire load. Rather, the system may consist of three or more units, sized so that a single steam generator can carry the light summer load, the second handle the air conditioning or normal winter load, and the other(s) put into service in extreme winter weather. These boilers could be identical in size, thereby simplifying maintenance and the stocking of spare parts.

Hot water service for all patient floors should be maintained at a normal temperature, and adjustable temperature regulating valves should be provided at all nursing areas so as to reduce the possibility of accidents to either patients or staff. In conventional hospital design, the general feeling is that a temperature of 140° F at the hot water heater will allow for a reasonable temperature drop at the fixtures. This method no doubt has proved satisfactory in past instances, but it should be reconsidered in current hospital design. Present day structures are getting larger. In some cases, the temperature at the furthermost fixtures may be too low. To solve this by raising the temperature at the heater will in turn produce high temperatures at the nearest fixtures. Then, too, water is wasted due to careless manual mixing at the fixture, not to mention the earlier deterioration of the valve seats on the hot water faucets.

It would be better to run 180° F water to mixing valves on each floor. These mixing valves could be set to the lowest possible temperature, perhaps down to the 105° F, as used in a Hubbard tank. At present, many scrub sink batteries are fitted with single faucets which provide a preblended water, controlled by a thermostatic mixing valve of the type found in showers. It also would be in order to consider the possibility of providing a single hot water main with 180°-200° F water, to serve kitchen and laundry, as well as patient areas, with adjustable blending valves and a circulating pump as needed.

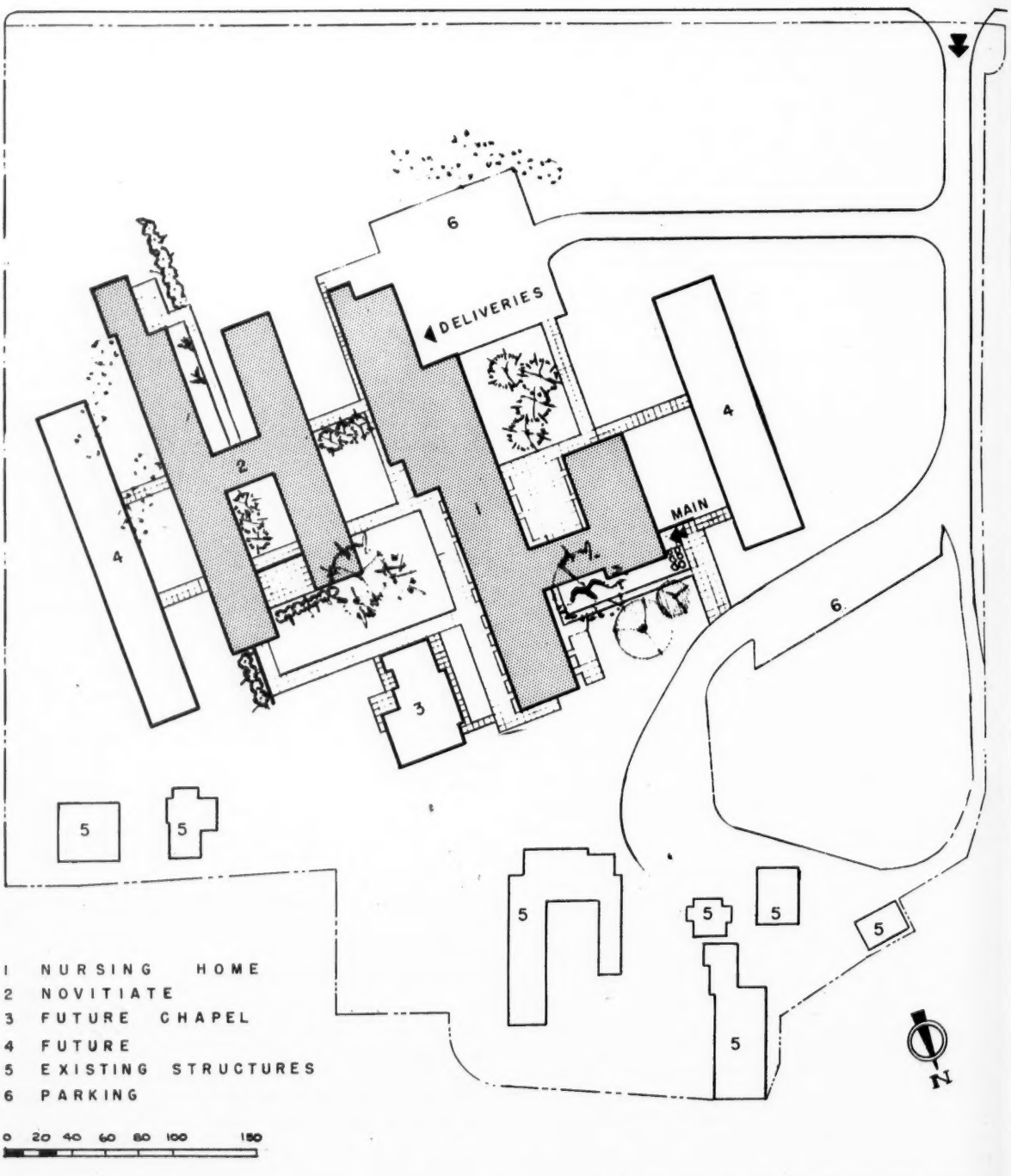
Electrical Facilities for Disasters and Emergencies

In electrical service, again the emphasis should be on reliability. Improved lighting and the use of more and more electrically powered equipment have meant heavier loads—loads that must be accommodated at present with ample provision for future expansion. Reliance on a single energy source is an invitation to a power outage. Even where two independent services are brought into the facility, no guarantee exists that the hospital will not be deprived of electrical energy. Witness the failures in New York City some years ago when power lines were overloaded by the high demands of air conditioners for summer cooling!

The present concern over Civil Defense has underscored the need for emergency power in time of disaster.

(Concluded on page 142)

HOSPITALLER BROTHERS' OJAI



Courtesy Gene Verge & R. N. Clatworthy, Architects & Associates

NURSING HOME AND NOVITIATE

Adaptation of existing facilities proved only a stopgap. The Hospitaller Brothers had a waiting list of patients and needed enlarged novitiate facilities. They built their new nursing home around the concept of rehabilitation of aged and physically handicapped patients—in California's Ojai Valley, where the climate and the view of the majestic mountains are an adjunct to therapy.

by BROTHER CORNELIUS, O.H.

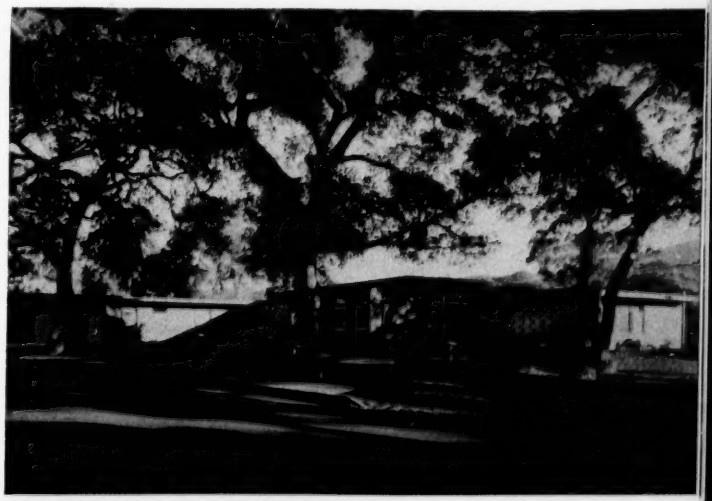
THE HOSPITALLER BROTHERS purchased 37 acres of land in the Ojai Valley of California in 1955 for a new nursing home and novitiate. The existing ranch house and guest houses lent themselves, with minimum renovation, to both purposes. However, it soon became apparent from the increase in patient applications and from a growth in the number of young men entering the Order, that additional facilities were needed.

After discussion with brothers on a provincial and local level, with state officials and representatives of the local medical profession, architects were contacted. These pre-planning contacts were of immeasurable help in getting a 'picture' of the proposed facilities, a small, convalescent-rehabilitation unit for the physically handicapped patient and a novitiate for the young brothers. Application was made for federal and state aid for the project, and a grant of $164,522 was received. The remainder of the construction costs were assumed by the brothers at the novitiate.

It seemed probable that at least one half of the census would consist of aged patients. One section of the home unit was designed for the non-ambulatory. Lavatories in the rooms permit the patient, with some assistance, to perform his own personal hygiene. The double rooms were designed in pairs with connecting bath, featuring tubs raised approximately one foot off the floor and convenient grab bars to ease the task of getting the patient in and out of the tub. Two to four nurses can work comfortably on both sides of the tub at once. Water closet doors were designed to admit a patient in a wheel chair with space around the water closet large enough to accommodate the patient and two nurses. The stools are the 'hung' type, each toilet is equipped with a call button which continues to ring until it is turned off in the bath room. This gives the patient a sense of security, as a red light on the reset button flashes on and off until it is turned off by the answering nurse. Grab bars have been installed on both sides of the stool as a safety measure.

The patients' rooms were designed to provide a pleasant, home-like atmosphere and ample room for nursing duties to be carried out with unhampered freedom of movement. Tracks for the cubicle curtains were recessed into the ceilings of the rooms. Each room is provided with a door, wide enough for a bed to be wheeled through. If the patient is unable to be gotten out of bed, the bed may be pushed onto the outdoor patio. (The Fire Department was delighted with this extra exit.) The beds are adjustable, but kept in the "low" position except when someone on the nursing staff is working with the patient. Each room has a television set installed on a shelf suspended from the ceiling, thus keeping the room uncluttered and placing the picture within easy vision of the bed patient. A fire sprinkling system protects the entire building, in halls as well as in patients' rooms, bath rooms, etc. Hand rails offer patient security in all halls throughout the hospital and physical therapy wing.

An intercom system provides instantaneous contact



MAIN ENTRANCE TO NURSING HOME

PHYSICAL THERAPY, WITH EXERCISE MAT AT RIGHT

HYDROTHERAPY HAS LARGE AND SMALL WHIRLPOOLS

NURSES' STATION ADJOINS CENTRAL SUPPLY

with the patients whenever necessary, and is controlled from the nurses' station, which is centrally located in the hospital wing, adjoining the central supply and utility rooms. The medicine room is also a part of the nurses' station, as is a bath room for the nursing personnel.

The second section of the wing was designed to assist the patient who is semi-ambulatory and progressing on his rehabilitation program. A 'drive-in-shower' was installed in this section. The floor of the shower is slanted for drainage. A patient may be placed in a wheel chair specifically adapted for shower use, to take his own shower. This is a great morale booster for patients such as paraplegics, who would ordinarily have to have either a bed bath or a tub bath. Grab bars have been installed inside the shower for ambulatory patients. Electrical outlets have been placed at a convenient height so that the patient does not have to stoop to plug in his razor.

The administration wing was designed to accommodate the physical therapy department and offices associated with a nursing-home type of operation. The administration department consists of a small receptionist's office adjoining the main lobby, the business office, medical records room, administrator's and secretary's office, guest dining-conference room and doctor's lounge. Doors connect all of these rooms and it is possible to go through the entire administration section without having to go out into the hall.

Physical therapy is the facility that gives the institution an opportunity to offer a positive therapeutic service to the patient; and this same facility engendered the idea of calling the new building St. Joseph's Rehabilitation Center, since it enables us to offer our patients more than custodial nursing care. A cement walk was laid on a gradual incline from the service parking lot to the rear entrance of the administration wing in which the physical therapy department is located. Outpatients who come to the department in a wheel chair or walker, or on crutches, find it much easier to use this entrance.

The physical therapy department is composed of the therapist's office which is in easy audible and visual range of the treatment area; a special examination room for neurological testing and treatment, a small dressing cubicle next to the whirlpool area—in which there are a large stationary whirlpool and a small portable one; a waiting area for patients; a main treatment room with three treatment cubicles divided by draw curtains. In this area there is sufficient cupboard room for storage, adequate room for the muscle stimulator, ultra sound machine, hydrocollator, and the traction machine for pelvic and cervical traction. There is also a utility sink in the area and a floor drain for the hydrocollator or paraffin bath. A large space at the end of the same room has been designed for gymnasium-type rehabilitation, with an 8′ x 8′ mat for exercising elevated 18″ off the floor to facilitate getting the patients on and off. This also provides easy access for the floor maintenance without moving the mat and platform. Parallel bars fold up against the wall when not in use for gait training and wall pulleys, a double staircase and a posture mirror are also in-

cluded. There is a rest room with grab bars located in the department. This department was designed primarily for the rehabilitation of the cerebral vascular accident, polio, arthritic and other patients whose disabilities require physical therapy.

The kitchen was planned to handle 600 meals per day, with a view to covering any future hospital or novitiate expansion. A large gas range with "Frialator" and grill was selected for cooking. A walk-in deep freeze and cooler unit, and two standard upright refrigerators take care of the freezing and refrigeration of foods. The dishwashing facilities were designed to handle a full load of dishes at top occupancy. Storage spaces for cooking utensils were placed in convenient locations. A small office for the dietitian, with the middle third portion of the walls glazed, facilitates supervision of the kitchen while providing privacy at the same time. The brothers' dining room is adjacent to the kitchen with a sliding serving door in the wall between the two rooms, assuring canonical enclosure of the dining room.

The laundry area consists of one large room with two 60-pound washing machines, an extractor, dryer, mangle, steam press, folding tables, and an adjoining sorting room where there are pigeon-hole type shelves for the brothers' personal laundry. The hospital linen is delivered from the same 'clean' room.

General and food storage areas consist of two large rooms and three smaller rooms. After the daily requisition from the kitchen is received by the novice in charge of the storeroom, the items requisitioned are delivered into a small, shelved room opening into the kitchen.

The air conditioning plant consists of units in the ceiling of each room with individual room temperature control. Hot water is produced by two 75-horsepower steam generators, which do not require an engineer in constant attendance; and chilled water is supplied by a 50-horsepower compressor. Both the hospital and novitiate are on the same heating and cooling system.

The hospital and novitiate buildings are constructed of concrete block, in modified contemporary ranch style with large glass areas to take advantage of the breathtakingly beautiful setting typical of the Ojai Valley.

In planning the novitiate building, the aim of the first two years of the formation program for the young brothers was kept in mind, i.e., their spiritual, cultural and intellectual formation. Accommodations for 30 novices, each with his own cell and bath room (including lavatory, watercloset and shower), two large class rooms, demonstration-work room, archives, library, guest parlors, offices, barber shop, recreation room and oratory are included in this building.

At present there are only two or three minor changes that we would make after having occupied the building for one year. We have found that we need more private rooms; we would also like the room doors a couple of inches wider to accommodate the particular type of side rails we have on the beds without danger to the patient; and we would add a few feet to the size of the physical therapy department. ★

PRIVATE ROOM HAS CURTAIN WALL, OUTSIDE PATIO

ARCADE CONNECTS NURSING HOME AND NOVITIATE

MAIN ENTRANCE TO NOVITIATE BUILDING

The Architect's Role in

Milieu Therapy

by ROBERT W. JACKSON

MILIEU THERAPY has been defined as a psychiatric treatment program that emphasizes environmental factors. In addition to shock and drug therapies and psychotherapy, environmental factor such as the general psychological atmosphere of the unit, relations with the community and the personnel who work with the patients are considered in the total planning program.

Milieu therapy is part and parcel of the philosophy of the so-called "open hospital" as opposed to the closed hospital where patients are closely confined, custodial care is the prime objective and isolation from the community is the watchword. The "open hospital" concept stems mainly from Thomas Kirkbride's "moral treatment" philosophy of the 1850's. He was the first to recognize the psychiatric hospital as a separate field of architectural design. The hospital was to be (in present day semantics) a "therapeutic community" in which the dignity and the individuality of the patient was to be preserved and the patient's freedom to be used for constructive activity.

Unfortunately, the architectural maxim of "form follows function" is laid aside too many times today in psychiatric design; a layout is compromised to fit the pattern of the medical-surgical nursing units. True, a uniformity in structural and mechanical systems and interior finishes may be achieved, but the atmosphere of the "institution" also is ingeniously preserved inviolate!

With the acceptance of milieu therapy, it would seem that a re-appraisal of the architect's approach to this design problem should be made. Traditional "rules of design" and preconceived ideas should be examined in the light of psychiatric philosophy and practice evolving today.

The design of a psychiatric unit in a general hospital that would incorporate this philosophy and practice requires a positive "team" approach by the professional hospital staff, the hospital consultant and the architect if the results desired of such a treatment program are to be achieved. A thorough understanding of the philosophy by all the members of the design team is essential for the incorporation of a dynamic treatment program.

The architect, in approaching this design problem, should know at least four important facts:

1. Patients admitted to a psychiatric service may have lost contact, temporarily, with their usual environment which may result in behavior that is considered unacceptable within society's frame of reference; however, their prognosis is such that a short term, intensive treatment program should result in their being returned to society.

2. Milieu therapy is designed to bring the patient back into contact with his environment through exposure to various "social situations" which he is expected to manage successfully.

3. The family is the usual social unit to which the patient will return.

4. The functional layout and atmosphere or feeling of the psychiatric unit is an integral part of the treatment program.

The architect's task, then, is quite clear—the creation of a therapeutic environment to which the patient can easily relate in terms of his experience, one that encourages social groupings comparable to the home and friends left behind. With this new concept of design and treatment, both space and spatial relations become effective means of therapy.

Ideally, what kind of a home would you and I like to have? It would be one designed with a series of environments to fit our ever-changing moods, complete with facilities for performing various social functions as desired. It would probably include such areas as a living room in which the entire family could enjoy each other's company, a family dining room, a kitchen and breakfast room for "coffee breaks" and preparing between-meals snacks, a laundry for washing and ironing personal effects, a hobby room as an outlet for the creative mood, a place for a quiet card game, a library for reading or writing, a den in which to watch television undisturbed, a garden for taking leisurely strolls and enjoying nature, a recreation room where the rug may be rolled back for dancing or games, a quiet room where one may entertain guests and serve refreshments, and a private room in which to withdraw from the group when complete privacy is desired. A neighborhood barber and beauty shop, as well as an outdoor recreation area, would be available. Nearby would be the family church for worship, prayer and meditation.

These are some of the various social environments that the patient has left behind and we should provide them in the psychiatric unit if our treatment philosophy is valid. The creation of each of these areas of activity will encourage the patient to enter into

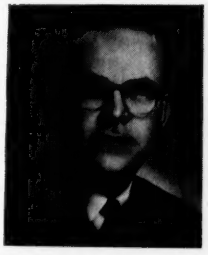
social relationships with those about him: fellow patients, nurses, doctors, other therapists, visitors, etc.

Careful attention should be given to the location of the psychiatric unit in relation to the main hospital and to the community in terms of patient care and public relations. Of course, supporting services such as laboratory, x-ray, laundry, administration, dietary, etc., should be as available to this unit as to any other clinical area of the hospital. Community acceptance and support of the psychiatric service may be enhanced by the proper physical location coupled with a positive program of community education. The public's acceptance of a psychiatric unit seems to be directly related to its accessibility. In short, it must become an integral part of the community so that the public can easily understand the activities and treatment programs. A unit located on the ground floor and adjacent to the outpatient department would promote just such an understanding in addition to other benefits.

First, such an arrangement would enable psychiatric treatment to be given in the regular outpatient department, thereby erasing some of the stigma usually connected with mental disease because of separate outpatient departments for psychiatric treatment. By bringing together in one place all the diagnostic and treatment facilities of the hospital not only would the public's fear in this area be alleviated, but such an arrangement would actually concentrate medical and paramedical personnel for use in a total inpatient and outpatient program. In addition, this ground floor location adjacent to the outpatient department would encourage the development of day-care and outpatient psychiatric programs, thereby relieving some of the patient load through early diagnosis and treatment. Then, too, future developments in drug therapy may lead to a majority of psychiatric patients treated as outpatients.

Secondly, the increasing use of community facilities for recreational and occupational therapy indicates that patient transportation could be simplified by having the patients on the ground floor. This would also encourage better relations with the community.

Outdoor recreational areas, patios, gardens and lawns should be readily available from the nursing unit. Obviously, these can be reached more easily if the unit is located on the ground floor where no vertical transportation problem exists and visual supervision may be simplified. The design of these exterior areas can then be coördinated with the interior rooms. If handled properly, nature is not abruptly set apart by the exterior walls in the patient's visual perspective, but becomes an extension of the interior space. Interior space may be made to seem to flow outward; exterior and interior space become one; the patient is invited to look beyond the four walls to another part of the world he knew; the "confinement" aspects of his treatment are nullified. Many delightful spatial relationships may be evolved by considering the exterior and the interior together in the design.



Robert W. Jackson has had extensive experience in the design of acute general hospitals, nursing homes, psychiatric, chronic and pediatric hospitals, rehabilitation units, schools of nursing and health centers. Mr. Jackson was chief architect of the U.S. Public Health Service, Kansas City regional office, Hospital and Medical Facilities, 1957-60. In this capacity, he was involved in programming, master planning, and preliminary design of approximately 250 hospitals in the region. Mr. Jackson received a masters degree from Iowa State University in 1950. He currently maintains his own office in Kansas City, Mo.

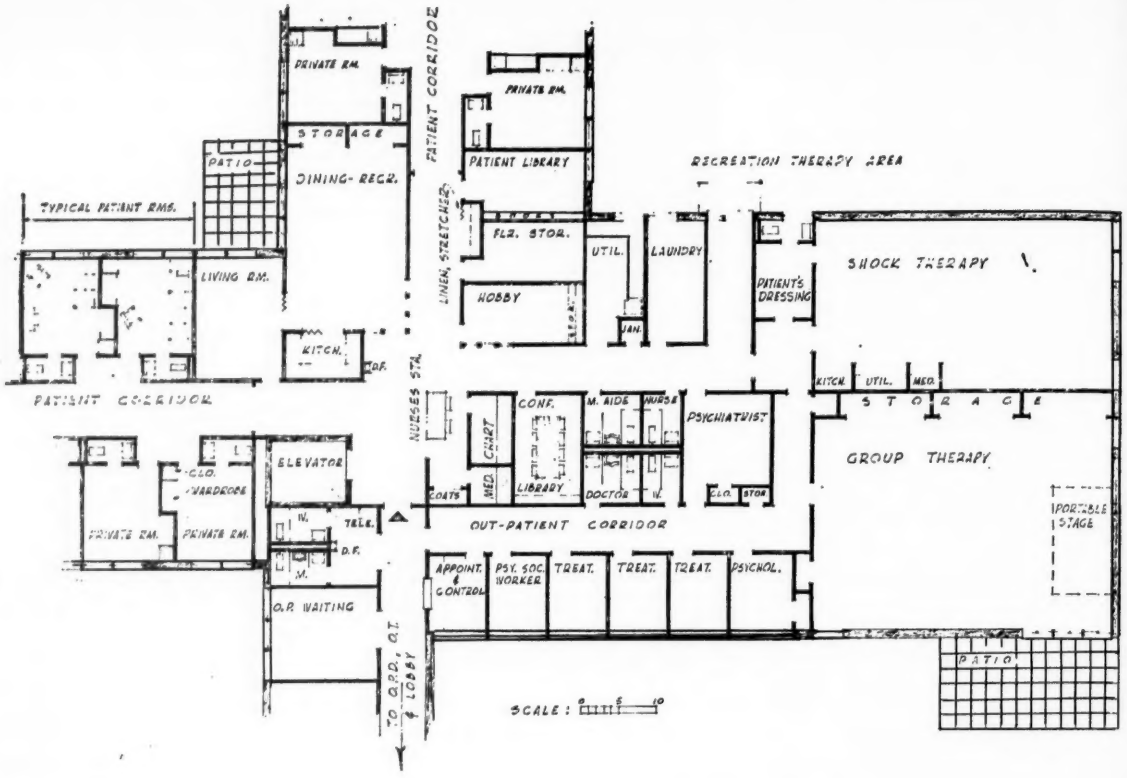
The matter of visual perspective of the outside world from the ground floor location should be examined. Most patients do not live in a penthouse but in a one or two-story house. Why, then, should they be put on the top story of the hospital and have to adjust to an entirely new visual concept of their surrounding community? The many adjustments necessary before they again face reality are difficult and we should avoid adding to their confusion.

The last point for consideration might be that, placed on the upper floors, the room layout is fairly well dictated by the mechanical and structural systems of the nursing units below. Great care has been exercised in designing the typical nursing units for medical, surgical and maternity patients; column spacing and vertical shafts for air ducts and piping is dictated by the space requirements of these room layouts. But it does not necessarily follow that the therapy and patient room requirements for a psychiatric unit can be adjusted to fit into these predetermined physical limitations. Too often the psychiatric unit is just another typical nursing unit with a different name on the door—the institutional layout and feeling has not been allayed.

Orientation of the unit as to sun, view and prevailing breezes must be considered. All rooms should have sun at some time during the day, if only for psychological reasons. Sunlight can add cheer to any room. This should preclude an east-west axis for the unit. While sunlight is very desirable, too much can be a detriment, especially in southern climates. Exterior sun-control devices, such as roof over-hangs or vertical louvers, should be considered if sunlight is a problem, particularly on western exposures. Sun-control devices will also reduce air conditioning costs.

In selecting the means of any sun-control, care should be taken that desirable views will not be obstructed or that a closed-in feeling results from too much protection from the direct rays of the sun. The patient should be able to maintain visual contact with the outside world.

With the advent of year-around air conditioning, many buildings are being designed and operated with no thought of ever opening the windows. However, it would seem that in areas where there are no odor or dust problems, there is a distinct psychological advantage to be gained, during certain times in the spring and fall, if the patients' windows can be opened just enough to admit the stimulating fresh air and the myriad of noises associated with the outside world. It might help the patient in maintaining contact with the outside and be a welcome change from the artificial atmosphere provided by mechanical means. It would seem more natural and closely akin to that found in the home. This could be another small movement away from the "institutional" feeling. With this in mind, prevailing breezes should be studied in designing the unit. To com-



This theoretical plan is designed for a short-term, intensive treatment, open-ward psychiatric unit as part of a general hospital. The unit is located on the ground floor adjacent to the outpatient department so that some patients could be treated on an outpatient or day care basis. Service would be by elevator. The public lobby is adjacent to the outpatient department for easy access by visitors to the psychiatric unit.

The layout is such that visual control of patient corridors, dining-recreation room and hobby room can be maintained from the nurses' desk, which is a control point for traffic to and from the laundry, library, living room and treatment areas, as well as visitors and service. Patient rooms have been placed in two separate wings to eliminate one long institutional corridor. Doors to patient rooms have been recessed to further alleviate this effect. Each patient room has a private toilet, convertible couch-bed, wardrobe, closet, writing desk and easy chair. A variety of furniture arrangements would be possible. Central bathing facilities are provided in each wing and patients' lockers are located in the basement. Daytime activity areas are concentrated around the central control point. The living-dining-kitchen relationship is much the same as in a private residence. The kitchen is mainly for patient use since it is assumed that centralized food service is provided. The patient library is somewhat removed from the other activity areas for better sound isolation. The laundry is in the utility-storage part of our "home" as in the hobby room. The hobby room may be used as an extension of occupational therapy.

The utility room is small since there is little need for this on a nursing unit of this type. It is placed away from the main patient-visitor corridor for psychological as well as practical reasons. The nurses' desk has an adjacent charting room and medicine preparation room. The conference-library is mostly for the use of the staff, but could double for patient use. The professional library will be located here. Toilets for nurses and male aides are close by. The stretcher storage with linen storage above is in a central location along with the floor storage, screened by folding doors. The psychiatric outpatient treatment area has been designed so that it may also be used for inpatient treatment. The psychiatrist's office is convenient to either area. The shock therapy and group therapy rooms are placed so that outpatients and inpatients may use them. The particular needs would dictate the exact size of these areas, as well as the number of treatment rooms. ★

plete the architectural expression of milieu therapy, careful attention should be given to seemingly minor details in the interior design and furnishing of the unit. For instance, in the matter of dimensional perspective, why should patients adjust to 9'6" high ceilings and 3'8" wide doors? In our homes we have 8'0" high ceilings and a maximum of 3'0" wide doors. An exception to this proposed door width would seem to be indicated only for those rooms where non-ambulatory patients might be expected. However, the medical and surgical units in the general hospital could have combination isolation-psychiatric patient rooms. This would then eliminate the need for any wide doors in the psychiatric unit.

Windows, also, must be carefully selected to avoid the institutional characteristics so often seen today. The residential feeling, dimensions and placement in the wall should be as nearly like residential design as possible. A ground floor unit may not even need the forbidding security devices since the suicide risk would be much less. Some means of controlling the maximum opening of the window would be indicated, however.

Sound control, lighting, color and mechanical ventilation are other details to be studied within the total framework of milieu therapy. Sound may pass through a wall if it is not properly designed; it may also pass through the ceiling, over the top of the

(Continued on page 144)

The Psychiatric Center in a General Hospital

by SISTER MARY dePAUL, S.M.
Administrator, McAuley Clinic
San Francisco, Calif.

THERE HAS BEEN a gradual transition in psychiatric services at St. Mary's Hospital, San Francisco, since the turn of the century. Admittedly, the predominant (and many times only) service consisted of emergency consultations and probably transfer of the patient to custodial facilities away from the general hospital. But with the establishment of the McAuley Clinic for psychiatric care in 1954 and the planned completion of a new six-story psychiatric wing this year, the hospital is now prepared to offer a full consultation, diagnostic and intensive psychotherapeutic program for adults and children on both an inpatient and outpatient basis.

The decision to open a psychiatric clinic and later to build a six-story psychiatric treatment unit were not spur-of-the-moment. Rather, they were the result of long and careful deliberations as well as a combination of circumstances and events peculiar to the largest private general hospital in San Francisco.

As early as 1896, the hospital's annual report was listing such diagnostic treatment entries as "acute mania," "morphinomania," "melancholia," "Neurasthenia," and "dementia." Even more interesting is the fact that the same report records the results of such treatments as "improved" and, in some instances, "cured." Hospital records further reveal that some 15 years later (1911), lectures on "nervous disorders" and similar topics were being introduced as part of the curriculum for the hospital's nursing students.

By 1940 the general outpatient clinic at the hospital was scheduling a definite day and times for appointments for psychiatric examinations and evaluations by qualified staff psychiatrists as part of its regular medical services. These psychiatric services included consultations and diagnoses.

In 1948 a decision was made requiring 12 weeks' experience in basic psychiatric nursing for all student nurses enrolled at St. Mary's College of Nursing. The need for faculty and teaching-supervisors to have at least similar or better preparation was recognized. Two sisters, who were teaching-supervisors, were selected to complete a basic psychiatric experience in an accredited program under Catholic auspices, and then were sent on for graduate work in psychiatric nursing at the Catholic University of America. These sisters returned to St. Mary's in 1951. The following year, St. Mary's contracted an affiliation with two State Hospitals in order to include this experience in the nursing curriculum.

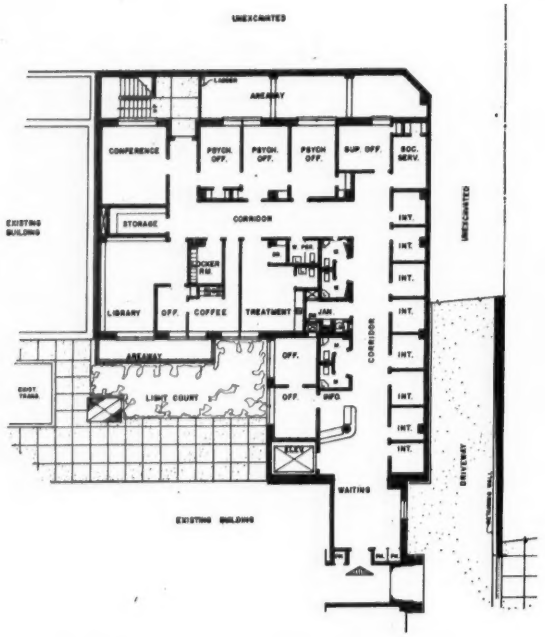
Meanwhile, pediatric services at the hospital had begun stressing the need for care of children with emotional problems. In 1950 the chief of pediatrics service, in collaboration with the hospital administrator and the Board of Control, drafted a letter to the State Mental Health Service of the Department of Public Health requesting information on raising funds for a child guidance clinic. In 1951 a formal application was made but without success. The interest in providing a source of assistance for child guidance was given further impetus by the growing need for such care as witnessed by sisters teaching in the parochial school system. The Department of Education of the Archdiocese of San Francisco encouraged efforts to find ways and means of establishing a center for child guidance in a Catholic setting.

In 1954 St. Mary's became the first Catholic hospital in the West to provide phychiatric outpatient care in "a Catholic setting" as its family guidance clinic became a reality. The venture was placed under the special patronage of the Mother Foundress of the Sisters of Mercy, Mother Catherine McAuley, and the hospital itself made the capital investment necessary to establish the new McAuley Clinic. Existing space in the west wing of the hospital was remodeled and refurnished. To aid the operating budget, $4,599 was granted by the National Institute of Mental Health, and the San Francisco Foundation awarded $7,500 in 1954 and $5,000 in 1955.

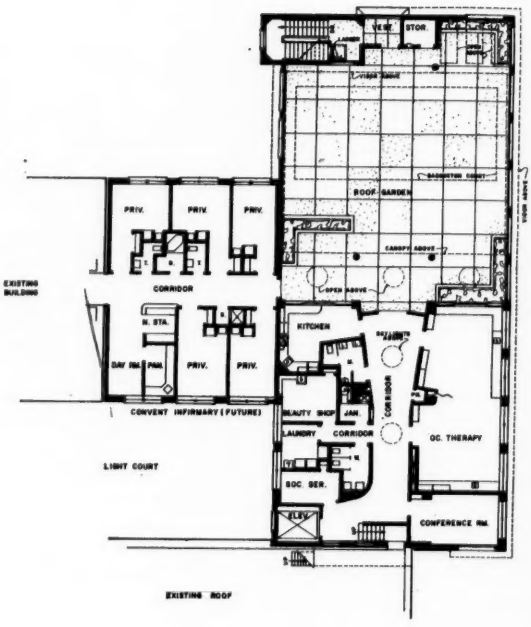
In addition to direct patient services, the Clinic provides consultative services to physicians and social agencies and also offers educational services in the form of workshops, seminars, and forums. The educational activities have been both internal and external. The Clinic has played host to students and teachers from various schools and

Psychiatric Center Plans

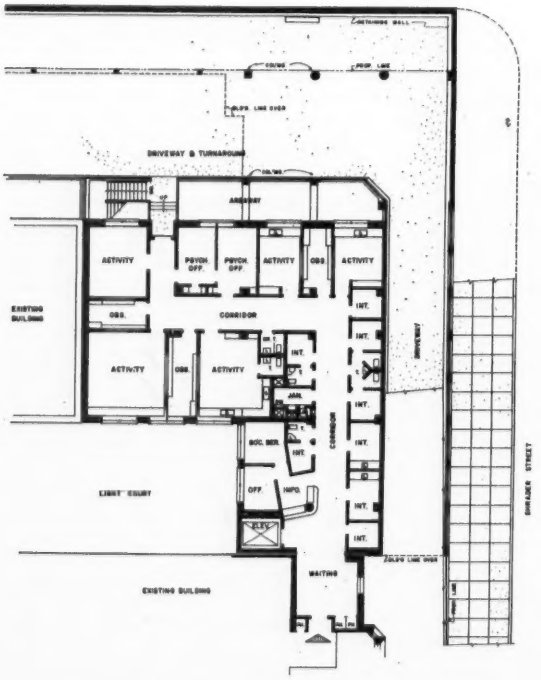
ST. MARY'S HOSPITAL **ARCHITECT: Frank W. Trabucco**



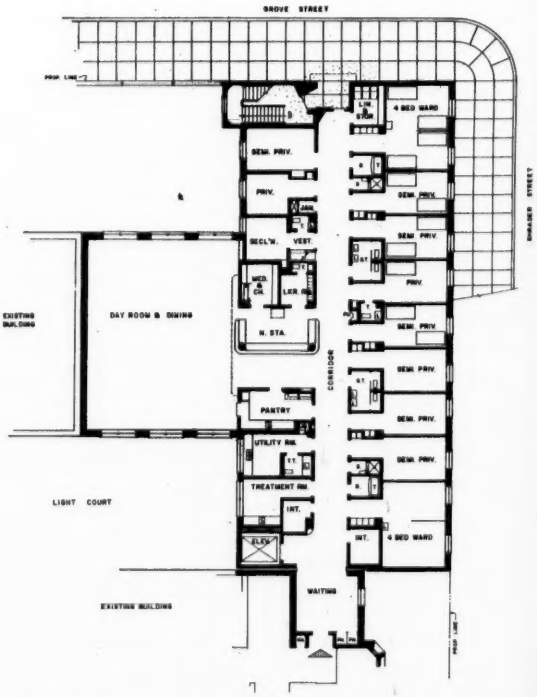
SECOND FLOOR—Adults' Outpatient



SIXTH FLOOR—Therapy



THIRD FLOOR—Children's Outpatient



FOURTH & FIFTH FLOORS—Inpatient

colleges. Its own relationships with other agencies in the community have been strengthened by its admission to the California Association of Community Psychiatric Clinics. It is now participating in a 10-clinic statistical study relating to a broader epidemological survey of mental illness.

In 1956-57 the McAuley Clinic was accepted as a member agency with budget participation. Income from patient fees has amounted to 25 to 30 per cent of the operating budget which has grown from $20,000 in 1954 to $66,000 in 1960.

A one-year residency program in psychiatry at the hospital clinic was approved by the American Board of Psychiatry and Neurology and the Council of Medical Education and Hospitals in 1957. The hospital was told that approval for a longer period of residency training would have been considered if inpatient facilities had been available.

Actually the need for inpatient facilities already had become manifest. The hospital's psychiatric clinic had been established in response to a need. The community's acceptance of the clinic and the continuing demand placed on it were proving overwhelming. Psychiatrists and interested parties increasingly were urging the hospital to consider making beds available for psychiatric patients.

The cry for more psychiatric services, however, was but part of an overall demand upon the hospital's physical facilities. Constant remodeling to combat crowding and antiquated techniques and to reallocate existing areas to new medical services had steadily reduced the hospital's bed capacity. A development program was initiated by the hospital and construction began on a new $2 million south wing. In addition, the installation of an entirely new electrical distributing system for the hospital, including auxiliary facilities in case of power failure, was undertaken at a cost of more than $100,000. These heavy expenditures and debts made the idea of a psychiatric wing distant indeed.

'Something Had To Be Done'

Survey findings by the State Bureau of Hospitals, however, continued to reveal an urgent shortage of beds for psychiatric care. Something had to be done, and, in 1958, the Board of Directors at St. Mary's applied for Hill-Burton Funds to erect a 50-bed psychiatric unit. The federal funds were granted the following year and matched by state funds. Architectural plans were approved and construction was begun. The building is expected to be completed by the latter part of this year.

Why are inpatient psychiatric centers needed?

"The examination, diagnosis and treatment of most medical patients are on an outpatient basis. But a patient is hospitalized if and when special diagnostic measures are needed or his condition justifies a controlled environment to bring the pathological process under more rapid control for treatment. For the patient with emotional disturbance and psychological pathology, however, this latter medical approach is generally unavailable. The psychiatrist in private practice is largely restricted to treating his patient on an outpatient basis. If the patient's condition requires hospitalization in order to institute environmental assistance to bring the pathological process under control, the psychiatrist has very little choice of places to bring his patient, unless the pathology is so severe as to require locked wards, bars on windows, restraints, commitment procedures, isolation from family and friends. Where is early care available? Generally speaking, psychiatric care practice in most general hospitals today is still similar to methods current in 1930 and earlier."

Sister M. DePaul, S.M.

The six-story wing is connected to the general hospital at each floor level to assure best use of hospital personnel, equipment and departmental services. The structure embraces 32,000 square feet, and in addition to outpatient facilities, includes 50 inpatient beds—25 for adults and 25 for children and adolescents. The children and adolescent care services will be concentrated in a self-contained unit, separate from adult care services. This unit for children is the only one of its kind available on the West Coast under private auspices.

The new building's facilities include offices, conference rooms, therapy and activity areas, observation rooms, professional library for resident trainees in psychiatry, psychology, nursing and social work. Provision also has been made for group therapy rooms, a large occupational therapy department and indoor and outdoor recreational facilities.

The first floor includes areas for mechanical equipment and general record storage. The second floor houses the adult outpatient psychiatric clinic, with private interview rooms, offices, group therapy rooms and a library. The third floor contains the childrens' and adolescents' outpatient clinic with closed circuit television in therapy and playrooms for medical education. The fourth and fifth floors are identical and each provides for 25 bed patients. The childrens' and adolescents' beds are on the fourth floor. The adult patients are housed on the fifth floor. The sixth floor contains the occupational therapy areas for the psychiatric unit. There are also kitchen facilities for snacks and indoor and outdoor parties, as well as space for outdoor recreation and receational equipment.

'Open Ward' Philosophy

St. Mary's will operate the new psychiatric unit according to the "open ward" philosophy. Patients will be admitted on the same basis as they are admitted to any unit of the general hospital. The new patient will be brought into the patient group as soon as possible so as to influence other incoming patients to conform to the behavior pattern of the nursing unit.

Environment and activities are intended to create a relaxed, enjoyable atmosphere. This includes permitting patients to sleep in the morning and to retire at night at approximately the same time as they do at home. Meals will be served in the combined day and dining room in attractive surroundings with a full complement of silverware and dishes.

Most patients will use their rooms only for sleeping and an occasional nap. To encourage socialization, provision has been made for a fully equipped recreation room, occupational therapy unit, outdoor recreation, laundry, beauty shop and kitchenette. Pan-

(Concluded on page 148)

Modern Hospital Lighting

by WILLARD ALLPHIN*

OBVIOUSLY A HOSPITAL cannot function without lighting. Yet, outside the operating room, modern illumination tools and methods are seldom used as effectively as they might be. The purpose here will be to state some basic principles regarding hospital lighting and to discuss various ways of following these principles. Illumination for hospital rooms will not be treated since lighting in these areas is usually designed and sold by specialists.

The very terminology of lighting poses a certain problem. The public, for example, regards a *lamp* as a shaded device that holds an incandescent bulb and is usually found standing on a table or the floor. The electrical industry, on the other hand, use the term *lamp* to denote an incandescent bulb or a fluorescent tube. *Fixture* is another ambiguous term, particularly in hospital lighting, since the device may be permanently installed on the wall or ceiling or may be attached to a bed. In this article, the word *lamp* will designate the incandescent bulb or fluorescent tube, and the lighting engineer's formal term *luminaire* will be used for whatever device holds it, whether the device is fixed or portable.

Fluorescent lamps are used almost universally today in business and industry for general lighting purposes because of their high efficiency. Allowing for electrical energy used in the ballast, a fluorescent lamp gives from two-and-a-half to three times the amount of light for an equivalent wattage and thus for an equivalent consumption of electricity. This greater efficiency of fluorescent lamps is particularly important in the renovation of old buildings since the illumination level actually may be doubled or tripled without increasing wire sizes or number of circuits simply by changing from incandescent to fluorescent lighting. Fluorescent lighting also has a much lower heating effect for the same illumination level, since heating effect is roughly proportional to wattage. Both considerations strongly commend the use of fluorescent lighting to hospitals for offices, laboratories, corridors and work areas. Fluorescent lamps have been used less widely in patients' rooms, but here they also can be employed to good advantage through the proper selection of lamp color and decorative hues.

There are eight "white" fluorescent lamps — Daylight, Standard Cool White, DeLuxe Cool White, White, Standard Warm White, Deluxe Warm White, Soft White and Natural White (See **Figure 1**). In most work areas, a choice among these eight is largely a matter of personal preference, since no one color is better than another from the standpoint of visual performance.

One exception is the examination room, where colors of skin and lips are important. Many doctors have preferred to work by daylight when possible, but daylight, even from a north window, is an inconstant thing. It varies in intensity throughout the day and, more important, changes in color, depending on the weather and the hour. Of course, no fluorescent lamp color is *exactly* the same as any particular color of daylight, but light from a fluorescent lamp will remain *constant* in color, so that the doctor can readily buld up an experience in judging under that color. Recommended lamp colors for examination rooms are Natural White, Deluxe Cool White, or Deluxe Warm White. If the general lighting in patients' rooms is from fluorescent it may be wise to use the same lamp color in examination rooms.

The requirements of office and laboratory lighting in a hospital do not differ from those in business and industry. The luminaires should be at-

*Mr. Allphin is with Illumination Research, Sylvania Lighting Products, Salem, Mass.

tractive without being conspicuous, and their shielding should be such as to minimize direct and reflected glare. Specific illumination levels for office work have been recommended by the Illuminating Engineering Society in its *Lighting Handbook,* third edition.

In hospital corridors, lighting needs do differ from those in an office building. In the daytime, doctors and visitors come from out-of-doors; their eyes are adapted to high brightness. The corridors are apt to appear gloomy unless lighted to a fairly high level. This is also the case when returning from a well daylighted patient's room into the corridor.

Thorough and efficient cleaning of corridors also requires a reasonably high lighting level. On the other hand, a brightly lighted corridor is undesirable at night because of the constant eye adaptation nurses would have to make entering and leaving dimly lit patients' rooms. A level of about 20 footcandles during the daytime and four footcandles at night would be suitable. This does not mean, however, that every fifth luminaire should be lighted at night to achieve the proper lighting level, as this would create a spotty effect. Rather, it is preferable to use two circuits per luminaire so that smaller lamps can be used on the night circuit. Sometimes separate corridor night lights can be flush mounted in the walls near the floor and constructed so as to confine the light to the floor region.

FIGURE I. WHITE FLUORESCENT LAMPS

Daylight—A "cold" color, on the bluish-green side. Because this was one of the first colors available, some people still think of it as typifying fluorescent lighting. Seldom used today except in such applications as Southern Textile Mills

Standard Cool White—Mixes well with the daylight entering a room through the windows. Widely used in business and industry.

Deluxe Cool White—Similar to Cool White, but has more red radiation, at the sacrifice of some efficiency. Enhances the appearance of red objects which are somewhat dulled in appearance under standard lamps.

White—Between Standard Cool White and Standard Warm White. General applications.

Standard Warm White—Mixes well with incandescent lighting. Widely used in homes and in applications where a home-lighting effect is desired.

Deluxe Warm White—Has more red radiation than standard type. See comments under Deluxe Cool White.

Soft White—Has more red output than the standard lamps, but also has considerable output in the blue and violet regions. Designed to give better rendition of human complexions and of meat on meat counters. Will probably be superseded by Natural White.

Natural White—A new lamp having more red radiation than any other fluorescent lamp. As with deluxe lamps, the higher red output is accompanied by a somewhat lower efficiency. Skin tones are particularly good under this lamp.

Patient Room Lighting

Lighting in a patient's room can help produce a pleasant, restful environment, or it can cause glare and distracting shadow patterns. The problems here differ from those in commercial and residential lighting, because of the technical demands encountered in hospital rooms and the different angles of view. For example, for a supine patient, the headwall is his ceiling, the opposite wall his floor, and the ceiling his facing wall.

General lighting should be such as to provide a pleasant appearance, reveal the patient to his visitors in an attractive light and permit the thorough cleaning of the room between occupancies. Brightness of surfaces in the field of view are more important than the illumination on them, because seeing depends upon the amount of light directed back to the eye. Furthermore, areas in which there is excessive contrast between the brighter and dimmer parts are uncomfortable to look at.

General lighting may be supplied from a luminaire on the wall over the head of the bed. If a ceiling luminaire is used, it should be indirect because of the prominence of the ceiling in the patient's visual field. The luminaire should direct all of its light toward the ceiling for redirection throughout the room. To accomplish this, the luminaire should be suspended, rather than mounted, directly on or in the ceiling.

Light for reading in bed is important. It should come from a direction which will be satisfactory for various adjustments of the hospital bed. One method would be to use an adjustable luminaire clamped to the head of the bed. But, while this permits the bed location to be changed, it will prove inconvenient if the practice is to move the patient from place to place in bed. Locating the reading light permanently on the upper wall over the head of the bed does limit the bed to one location, but it is likely to be limited anyway today by the compactness of rooms and the location of other services. Luminaires mounted on the upper wall can combine the general light and the reading light in separately switched parts.

Light for reading in the easy chair should be considered for the convalescent patient. Such lighting can also serve a special night nurse for reading or knitting. If there is only one logical location for the easy chair, the luminaire may well be a wall bracket. On the other hand, some administrators like the domestic note introduced by using a floor luminaire. A floor luminaire also can be used for reading in bed.

Night Lights & Examination

Night lighting requires a dim light so that the nurse can check the patient's condition or wait on him in other ways without awakening him or any other patients in the room. This night light can be set flush in the wall, so that most of its light is directed along the floor. Sometimes a small incandescent lamp can be mounted in the general lighting fixture. Where it is the practice not to leave the light on all night but to have the nurse switch

(Concluded on page 151)

Where stairs are heavily traveled, good lighting on the steps is important for safety and housekeeping. Here, a wall-mounted lighting fixture is designed so as to accommodate the handrail as well.

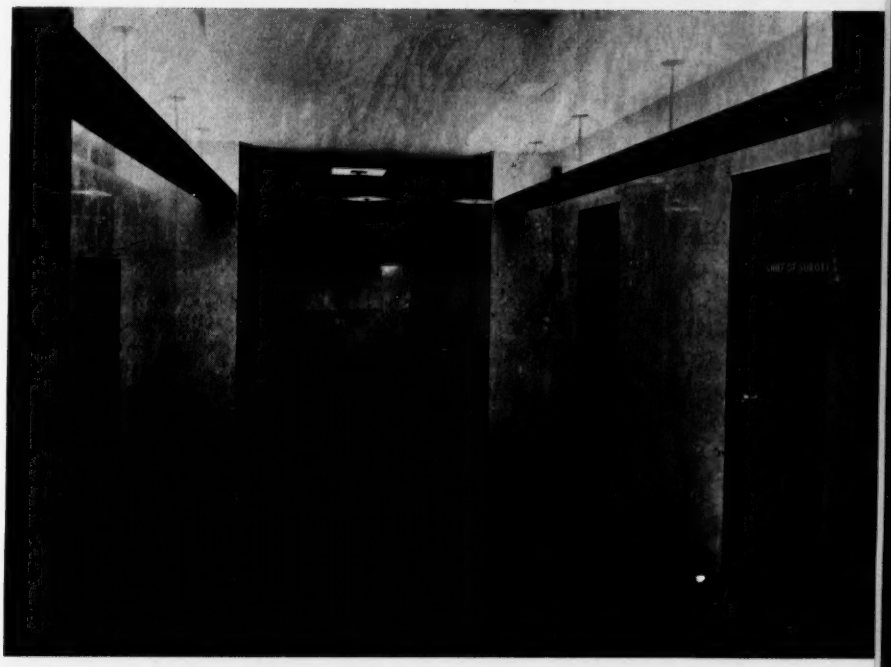
Six-inch wide troffers, recessed near the walls of a corridor, make walls much brighter than a centrally located fixture would, also impart a spacious, cheerful impression.

CORRIDOR LIGHTING

PHOTOS courtesy General Electric

HOSPITAL PROGRESS

Troffers are mounted crosswise in near ceiling area, are staggered with alternate units toward center to decrease a feeling of length and narrowness. Two wall-to-wall louvered lighting elements also act as visual "eye-stoppers."



Where recessed lighting fixtures are not practical, units may be wall or ceiling mounted. At right, suspended fixtures provide light for both ceiling and walls. Recessed lighting units are used at junction of corridors.

Individual fixtures are mounted crosswise to impart a feeling of better proportion to the corridor. It is important that the fixtures be relatively low in side brightness to prevent an effect of glaring.

Mobile Equipment Simplifies Tray Service

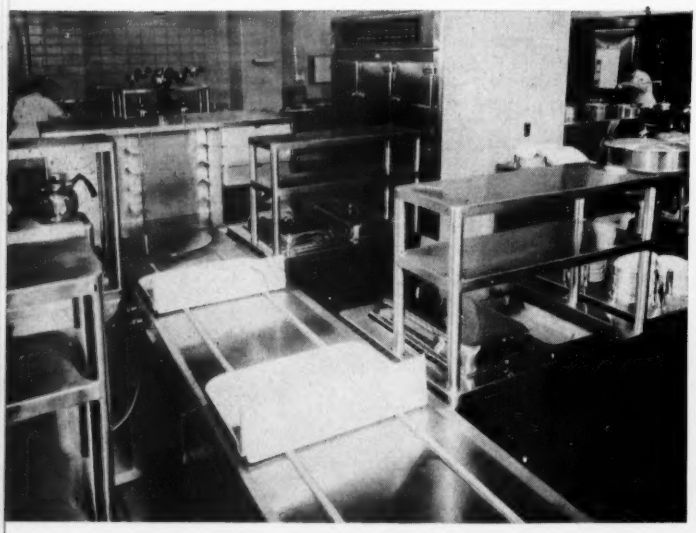
by SR. MARY IMELDINE, C.S.S.F.
Director, Dietary Dept.
St. Francis Hospital
Milwaukee, Wis.

MANY HOSPITALS believe that installation and use of mobile equipment saves time and money for them. Other hospitals, like Milwaukee's St. Francis Hospital, go one step further and recommend for all practical purposes a complete installation of mobile equipment for economical and efficient food service operation.

St. Francis Hospital favors mobile equipment for the following reasons:

1. Mobile equipment may be moved many times in order to find the most desirable arrangement in terms of the type of food service, labor expenditure, speed of service and space. For example, at St. Francis Hospital, if the central tray service system had been stationary, the equipment would have been torn out many times because the original layout did not meet the hospital's needs. Some of the equipment was moved seven or eight times.

Moreover, when the tray assembly system was first set up at St. Francis Hospital, 16 to 18 persons were required to run the tray assembly line properly. Re-arrangement has cut this to 11 persons, including the dietitian, and the total time for tray service has



THE CENTRAL FOOD SERVICE SET-UP is illustrated above. Trays move along the tray line (left) and dietary employes place food on them from both sides. A dietitian stands at the end of the tray line and checks each tray as it reaches the revolving circle. Mobile cart at the end of the line stands ready to be transported to the various floors. Photo at right shows the position of each of the dietary employes in the manipulating tray line.

been shortened to half an hour for trays. It takes exactly nine seconds to send one tray through the tray assembly line and to load it into a cart for distribution to patients. Consequently, the food reaches the patient at the prepared temperature.

2. Movable carts simplify transfer of foods from the preparation area to the serving stations, particularly when the main kitchen is not large. Moreover, this method of transfer reduces handling and cuts down on accidents, such as the spillage of hot liquids. Even in a larger kitchen, movable carts would save time and labor in loading.

3. Movable carts permit faster and more efficient cleaning. They can be easily moved for cleaning the sides and floor beneath them. Since the carts are made of stainless steel, they can be washed quickly.

4. Movable carts have extra electrical outlets on both sides which make it more convenient to plug them into either side of the tray assembly line and to connect the dish dispensers. The result is more space directly around the tray assembly area.

5. Movable carts can be used in many additional ways. For example, at St. Francis Hospital two "special diet station" carts designed primarily for special diet foods have a refrigerated section, two heated drawers in the base, and a large counter space with two upper shelves above the base. These carts were considered unnecessary, but because they were mobile they were used to serve salads and desserts.

6. Mobile equipment, such as dish dispensers on wheels, can help reduce dish breakage and storage space. The dispensers which are made of stainless steel with rubber bumpers and hard rubber wheels are moved directly from the tray assembly line to the dishroom where the clean dishes are placed in them after being removed from the dish machine. This method eliminates extra handling, cuts down on dish breakage and eliminates extra storage space for clean dishes. After the dispensers are filled with clean dishes, they are moved to the tray assembly area and are connected to the mobile carts for heating.

Convinced of the practicality of mobile equipment, the administration at St. Francis Hospital chose entirely mobile food service equipment with the exception of the tray assembly line itself. The tray assembly line's primary

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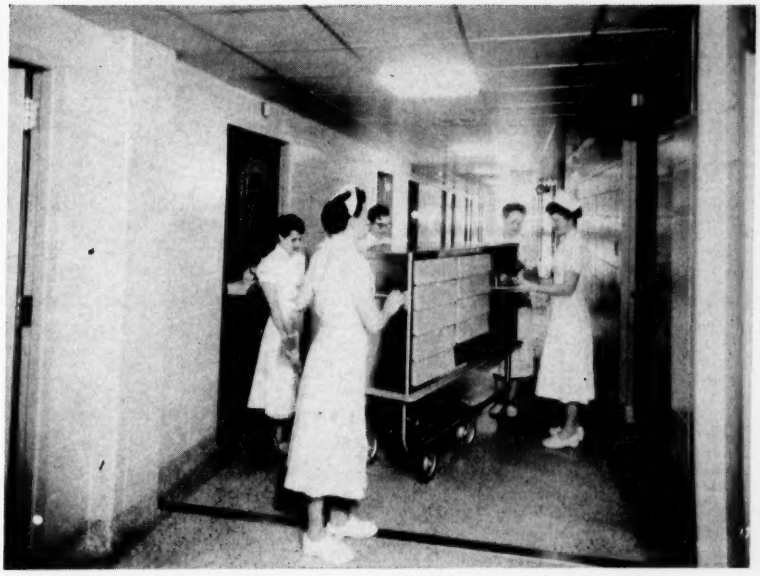
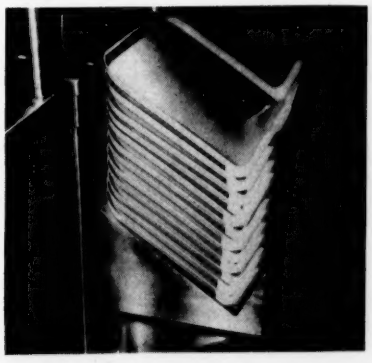


DIETARY PERSONNEL transport food trays on mobile carts through the corridors. Special cart design, allowing 15 trays to fit tightly into position, ensures constant food temperature control.



TRAY LOADING UNITS are permanently placed roller type tray slides fitted at their starting end with a cantilever type lowerator designed to hold 15 trays in serving position.

THE PATIENT receives the benefits of the efficient mobile equipment service. Temperature controls on each mobile cart enables each tray to reach the patient at the desired temperature.

Fighting Scale and Corrosion

by **LOUIS C. KAUFMAN**
Jericho, N.Y.

ALL HOT WATER VESSELS are vulnerable to scale and corrosion. Scale is caused by hard water, and approximately 80 per cent of this country suffers from what is technically known as hard water. Soft water, on the other hand, has definite advantages, but it can cause corrosion under certain circumstances.

Large users of water—restaurants, food processing plants, bakeries, etc.—are concerned about scale and corrosion, for these factors have an important bearing on their daily business. Hospitals are concerned also; their usage covers water and steam for cooking, potable hot water and hot water for washing. Maintenance and repairs will be necessary, of course, but must these two items be aggravated by scale and corrosion?

Notice that in describing this problem affecting water users, the term *hot water* has been used. There is a reason for this. Natural waters contain varying amounts of several different types of impurities. In some rare cases the impurities themselves may have a commercial value, such as Saratoga water or Mineral water, but they are hardly suitable for making an acceptable cup of coffee. In any case, the nature and proportion of these impurities vary with the location.

Now, here is where the problem begins. In a hot water heater, a boiler, steam table, a coffee urn or even a tea kettle, the evaporation of the water during heating causes the mineral salts in the water to become more highly concentrated. This concentration finally reaches a limit or saturation value, where further loss of water results in the precipitation of these salts. Without proper water treatment these precipitated salts will bake on the heating surfaces and form a hard, firmly attached scale which gradually thickens.

As is well known, this scale acts as a heat insulator, reducing the heating transfer rate from the metal to the water. This not only increases fuel consumption, but raises the metal temperature excessively by interfering with the evaporation cooling process. Prolonged exposure to this excessive heat may cause actual failure of the metal through oxidation and modification of its crystalline structure. Coffee urns, for example, have been observed on which faucets barely worked and scale formation was so bad that even acid washing was ineffective and the units had to be replaced. Scale formation also prevents water level controls and other equipment from operating properly, thus allowing burnouts to occur.

Corrosion of food service equipment is an even more serious condition. It is an actual deterioration and weakening of the metal. Corrosion is basically an electro-chemical action similar to that which takes place in a battery. In a storage battery, for instance, electricity flows between metal areas through an electrolyte solution. When current leaves the metal and enters the electrolyte, the metal deteriorates. This is what also can occur in water containers.

Every known substance is electro-positive or electro-negative in relation to every other substance, and a current flow can be set up even between two different areas of the same metal. A difference of potential (voltage) between the two areas will cause current to flow.

Corrosion takes place when the current leaves the metal and enters the electrolyte or water in the case of boilers or coffee urns. The disintegration of the metal is further accelerated by the corrosive action of dissolved oxygen. This attack is usually confined to the hottest area below the water level and generally takes the form of localized pitting.

Current is set up in many types of equipment because of the use of dissimilar metals. Stainless steel urns, for example, may have copper or steel piping. Faucets are usually of another metal, as are also control valves. These all act to set up dissimilar metal galvanic cells. All of these softer metals in the electro-motive series of metals will be attacked by pitting, caused by either galvanic action or oxygen.

How can the high cost of corrosion and scale be reduced? A number of methods are available, including ion exchangers, chemicals and the newest method—rapidly becoming widely recognized—cathodic protection.

1. *Ion Exchange or Water Softener.* In many areas the installation of a water softener is used as an approach to the hard water problem. The water softener works in the following manner. Certain natural and synthetic "zeolites" are capable of exchanging ions with the dissolved salts of hard water as it flows through a tank packed with granules of the "zeolite." In general, the natural "zeolites" exchange sodium ions for the calcium and magnesium ions in the water to yield sodium bicarbonates and sodium sulfates, which do not form a scale. A more recent development consists of using two synthetic "zeolites" in successive tanks, the first of which exchanges hydrogen ions for the metallic ions and the second substitutes hydroxyl ions for the anodic ions. It is possible to produce water which is nearly free of

dissolved salts. However, water which is softened according to these methods is more corrosive than naturally softened water, and protection against corrosion will be required.

2. *Chemical Treatment.* Scale and corrosion in potable hot water systems can be controlled by combining various chemicals added to the feed water either manually or by proportioning pumps or line type "feeders."

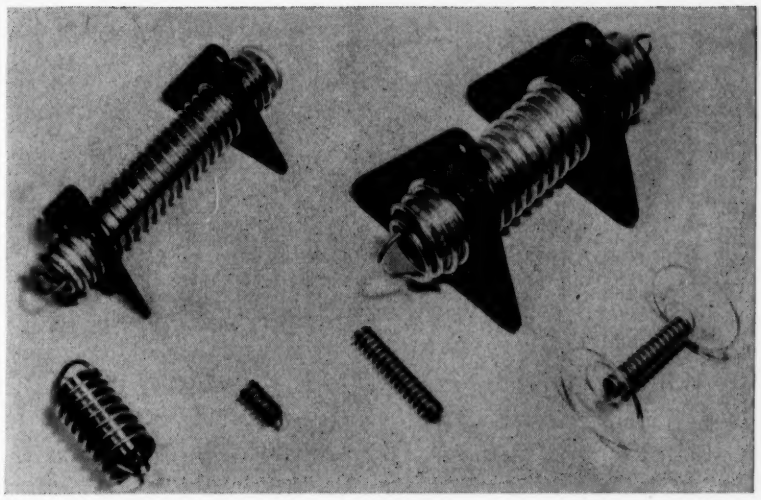
Needless to say, many chemicals found effective in water treatment for a laundry, for example, cannot be used in food preparation because of toxicity. Even assuming non-toxic chemicals with which to treat water, many precautions must still be taken in order for this method to be satisfactory.

3. *Cathodic Protection.* Serious consideration should be given to cathodic protection for the prevention of scale and corrosion in food service equipment, as it is automatic in operation, simple and easy to install, and least difficult to handle of all types of treatment. In essence, this method consists of providing a small sacrificial metal anode which will not in any way change the water taste or purity, is absolutely safe and non-toxic, yet will bear all the punishment of the water attack in place of the equipment itself. This is cathodic protection.

Today's modern cathodic device consists of two parts—a zinc alloy anode with a silver-plated bronze wire cathode wrapped around it. In this way the unit is self-contained, providing both anode and cathode and requiring no outside current source. It is easily installed and will operate in any type of container.

This is how it works. When this device is placed in any piece of equipment it sets up its own current flow without any outside source. A current develops between the anode and cathode, and the zinc alloy anode slowly disintegrates under the attack of the water. As this anode disintegrates it combines with the minerals dissolved in the water to form a different type of mineral that is insoluble in the water and which merely settles to the bottom where it can be easily removed. This is proper water treatment — keeping scale-forming salts in such a condition that they drop to the bottom as a soft sludge which later can be cleaned out, rather than adhering to the sides of the urns or the coils in steam tables.

Cathodic water protection has been certified by various government agencies and public health authorities, as absolutely safe for all potable water supplies. As a matter of fact, cathodic devices are supplied on much original equipment—coffee urns, steam tables, steam cookers, sterilizers, etc.

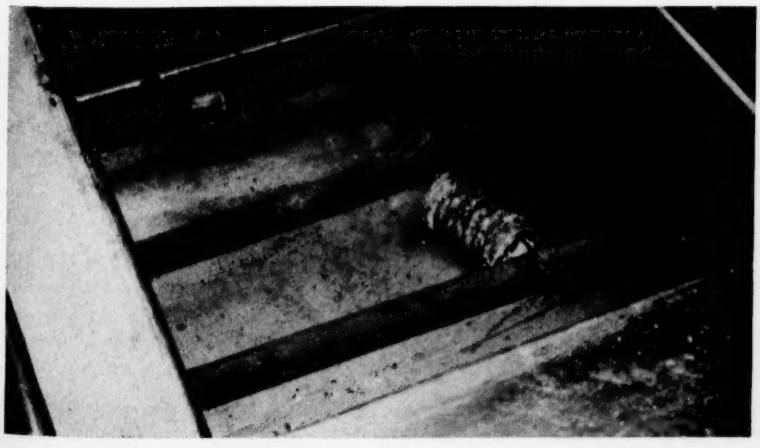


VARIOUS SIZED cathodic devices have a wide range of uses from large boilers and steam tables to small coffee urns and sterilizers.

Today, modern research has given the cathodic protector industry improved metals which work with utmost satisfaction in boilers, hot water generator equipment and storage tanks. Zinc is an unusual metal in that, as part of a cathodic device, it reacts readily electro-chemically and just as readily with mineral salts in solution. In short, it works two ways. It raises acid waters to alkaline and reduces highly alkaline waters to a safe pH level automatically and continuously. As a matter of fact, the liberated zinc ions combine with the minerals in the waters so effectively that they will actually dissolve old and hardened scale formations. Zinc also reacts with free oxygen and CO_2 neutralizing them and thus preventing pitting.

However, cathodic protection is no cure-all. It requires periodic replacement, and the proper types and sizes must be used. Normal clean-up procedures must still be maintained but the time involved will be reduced considerably, thereby saving labor costs. Its most important features are that it eliminates the daily care usually required by other forms of water protection and that it operates automatically and continuously, adjusting itself to variations in water analysis and demand load. A true cathodic unit is absolutely safe and will more than repay its small cost by adding years of trouble-free life to equipment. ★

CATHODIC UNIT installed in a steam table shows deterioration while steam table has remained intact. Without the cathodic device the steam table itself would have borne the brunt of the water attack.



Construction Lawsuits

by WM. A. REGAN, Attorney at Law • Providence, R.I.

HOSPITAL BUILDING PROGRAMS continue unabated. Population growth, more advanced and specialized methods of treatment, and the necessity for greater individual care—all require that more and more inpatient bed space be made available. In every hospital the tendency of modern design toward a roomier, brighter, more cheerful atmosphere has greatly increased the use of glass materials and electronic equipment. These design trends have created a new set of legal problems heretofore not of particular concern to hospital administrators.

A number of recent legal decisions reflect the changes that have been taking place in hospital construction. For example, in the past, cases involving dimly lit corridors or weak floor construction constituted many of the personal injury suits against hospitals. Now most such actions concern bright, highly polished floors and corridors in well-illuminated surroundings. Strangely enough, attractive foyers and corridors contain many a potential legal pitfall.

Not all construction cases, of course, are concerned with suits for injuries due to negligence. The courts have considered cases involving many aspects of hospital construction from fund-raising to the installation of emergency buttons. The following cases indicate the attitude of the judiciary toward a few of the problems confronting hospitals undergoing construction and development.

Liberty Maimonides Hospital vs. Jack Felberg
Sullivan County Court—158 N.Y.S. 2d 913

Defendant Refuses To Honor Pledge

THIS CASE is illustrative of the difficulties often inherent in the attempt to collect donations under a pledge or a subscription. Most people who sign a pledge for hospital expansion or construction fully intend to fulfill their pledge. Most often the hospital has every right to rely upon these pledges and has no difficulty in collecting. However, as in all things, the proverbial exception exists. Human nature is such that there have been people in the past and will be in the future who will subscribe to a charitable fund without the slightest intention of ever fulfilling their pledge. Whatever their motive, it is undeniable that such things have occurred. There is also the possibility of encountering the person who makes a promise of a certain donation and subsequently changes his mind.

Liberty Maimonides Hospital apparently was well aware of these factors when it prepared its subscription form for a building fund drive for its expansion. One Jack Felberg signed the form which stated: "To help provide funds for the construction of a new and modern Maimonides Hospital and in consideration of the pledges of others for the same purpose, I hereby promise to pay to Maimonides Hospital Building Fund the following sum—$600." At the bottom of the form was a statement to the effect that all checks were to be made payable to Maimonides Hospital. Mr. Felberg affixed his signature on the appropriate line.

For some time thereafter the fund raising drive continued until the hospital finally commenced construction of its new building. Meanwhile, the hospital itself changed its name from Maimonides Hospital to Liberty Maimonides Hospital designating its location in Liberty, N. Y.

The dates on which Mr. Felberg's installment payments became due passed without any payment being received by the hospital. Despite requests from the hospital and eventually a demand, Mr. Felberg flatly refused to fulfill his pledge. In time, the hospital instituted suit for the full amount of the subscription promise.

Mr. Felberg denied liability on two grounds. He claimed that his signature on the subscription did not thereby create a binding contract. This was based on the theory that a contract to be enforceable must be mutual in all respects and in this instance, although the hospital would certainly benefit from the donation, no benefit would accrue to Mr. Felberg.

The second ground relied upon by the defendant to escape liability was founded upon the *change in the hospital name.* He argued that the subscription signed by him was a promise of payment to Maimonides Hospital. However, the hospital had changed its name and presently *Liberty* Maimonides Hospital was seeking to enforce his contribution. He argued that, should he be required to

(Continued on page 160)

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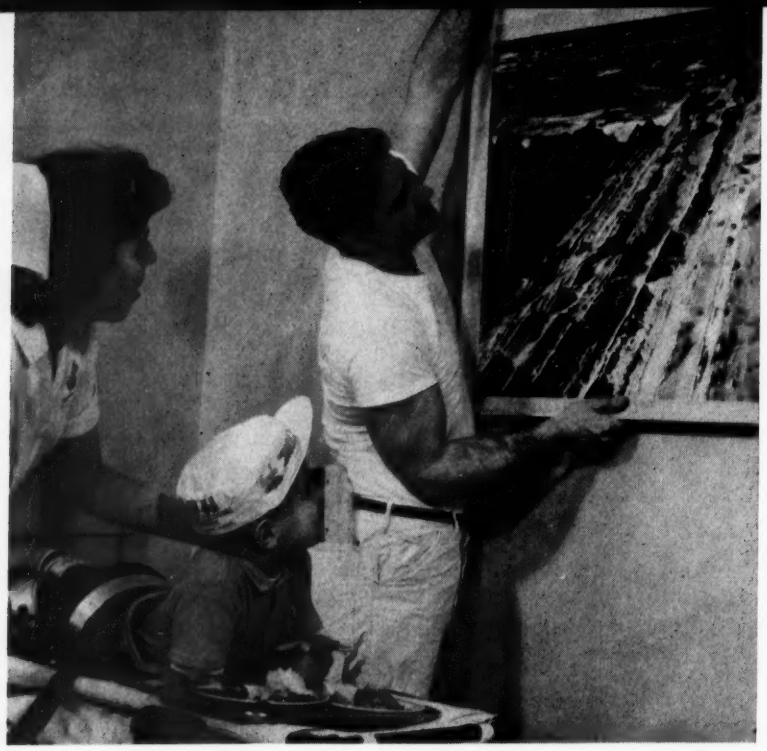

A NURSE and her young patient admire wallpaper mural.

Wallpaper Advantages

by **LILY POYSER***

EFFICIENCY AND ATTRACTIVENESS are expected to go hand in hand. Among hospitals, however, attractiveness all too often is regarded as a mere luxury that can be dispensed with. Their budgets frequently allow only a minimum for decoration. Yet, interiors do have to be finished, and hospital management should undertake this task from the point of view of the best for both maintenance and appearance.

In this area, wallpaper presents many important advantages. It is inexpensive and it has a great variety of designs and colors. Many manufacturers, when a job is large enough, will print special colors and designs.

In terms of expense, wallpaper can be installed complete at a cost ranging from 10 to 20 cents a square foot. Hospitals already using wallpaper have found its low initial cost competitive with any other type of wall treatment. The big saving, they have discovered, stems from the fact that wallpaper, because of its design or texture, actually looks better longer. Dirt and scuff marks are not so obvious, and there is no problem of chipped, cracked and peeling walls requiring frequent refinishing.

Modern wallpapers also offer many excellently simulated textures such as wood, brick, stone, tile, grasscloth and marble, all of which can be used effectively in such public areas as corridors, lobbies, doctors' suites and conference rooms. These textures are a product of cleverly combined techniques. Embossed, raised and woven surfaces are combined with light and shadow so that the textures have a three dimensional effect—they not only look like brick or grasscloth or wood, but they feel like them too. In addition, they are tough. They stand up well in heavily trafficked areas because they are easy to clean, and the modern plastic-treated wallpapers can withstand repeated scrubbings when necessary.

Wallpaper designs themselves cover an immense range. They vary from small intimate patterns to large, spectacular scenics, and thus can be used in the many different areas of a hospital, from its entrance lobby to its private rooms.

The hospital entrance is most important, the high spot of decoration,

TOY SOLDIER design pleases children at Newington (Conn.) Hospital.

*Miss Poyser is a member of Wallpaper Council, Inc., New York, N.Y.

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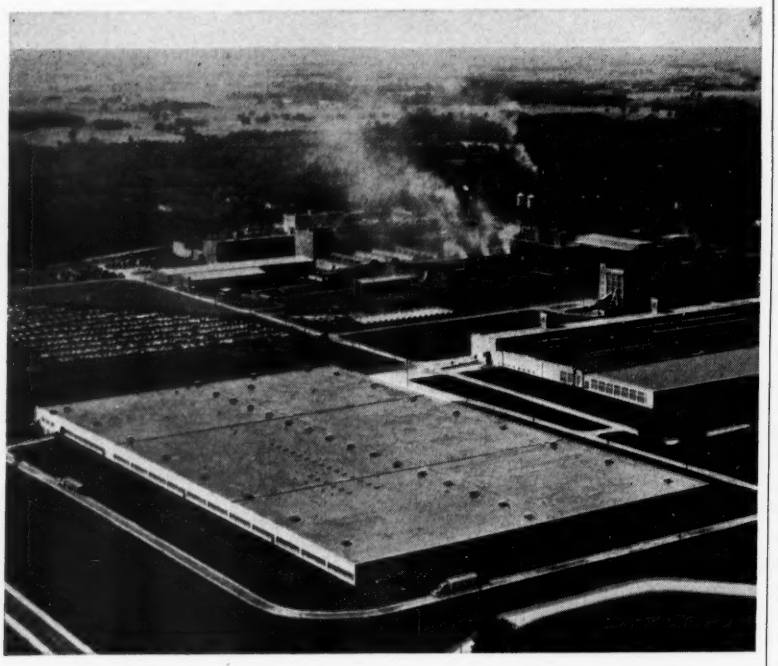

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as it were, for the architect-designer. If the hospital budget is large enough, an artist may be commissioned to create an original work of imposing beauty. On the other hand, there are wallpaper designs by first-rate artists that will bring both dignity and beauty to any hospital entrance at a considerable savings in cost.

The use of wallpaper in hospital private and/or semi-private rooms is increasing. Drab interiors can have a depressing effect not only on patients but on the staff as well. Wallpaper serves to eliminate the so-called institutional look. At one hospital, for example, solaria for convalescing patients were redecorated with mural wallpapers. That was four years ago, yet these same wallpapers today show neither wear nor tear. In this instance, the reduction in maintenance costs plus the therapeutic effect of charming surroundings have offset many times over the slightly higher initial costs of the murals.

Patients invariably react favorably to a room that has colorful design. They immediately feel a personal welcome that is far removed from the usual cold feeling associated with any institution. And this in turn often may prove a valuable therapeutic plus-factor in the patients' recovery. Wallpaper provides this opportunity for colorful design. In fact, a particular wallpaper design often may form the basis for an easy and effective decorating scheme, by repeating a background color in the woodwork and doors, while matching a dominant color with the draperies.

A fine example of the therapeutic value of surroundings through wallpaper design is to be found in the Newington Hospital for Crippled Children in Newington, Conn. Children need cheerful surroundings, so wallpaper was chosen for the teenage wards, nursing playroom, children's dining room and in the corridors leading to and from the treatment centers. In the corridors, for example, a gay circus pattern was used. The children themselves participated in the project, helping to choose certain designs and colors. As a result, the hospital was brightened not only visually, but morally as well. For cheerfulness and courage are always far easier in lighthearted surroundings.

Whether in new construction or in remodeling, modern wallpaper combines the functional with the attractive. It is an ideal point of view from which to consider interior decorating. ★

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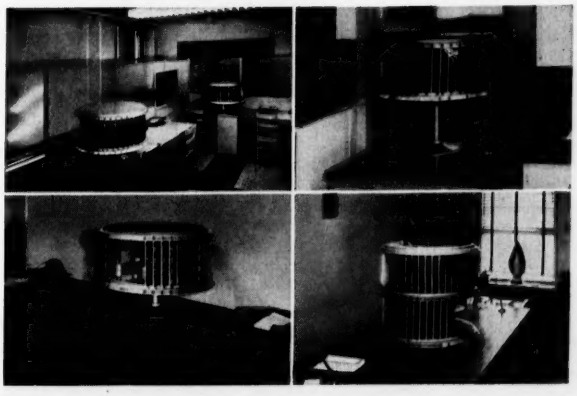

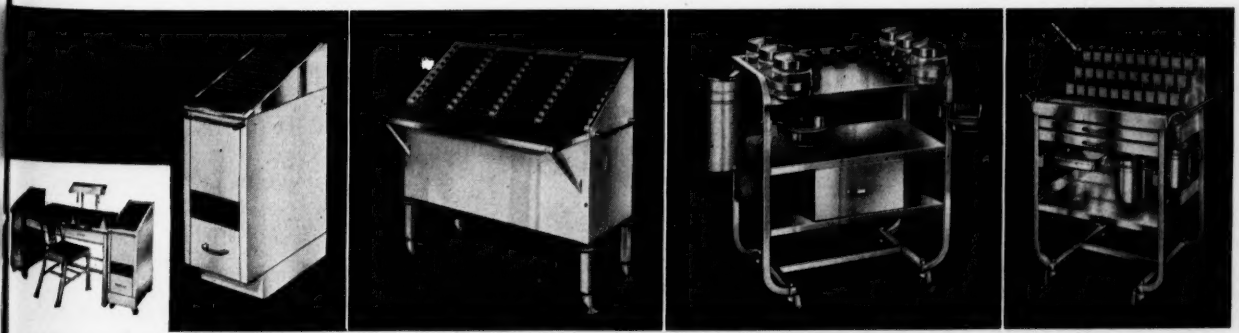

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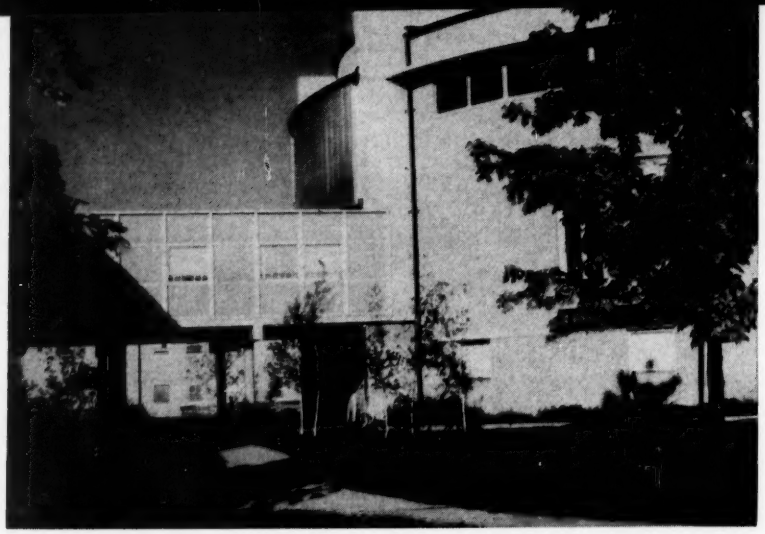


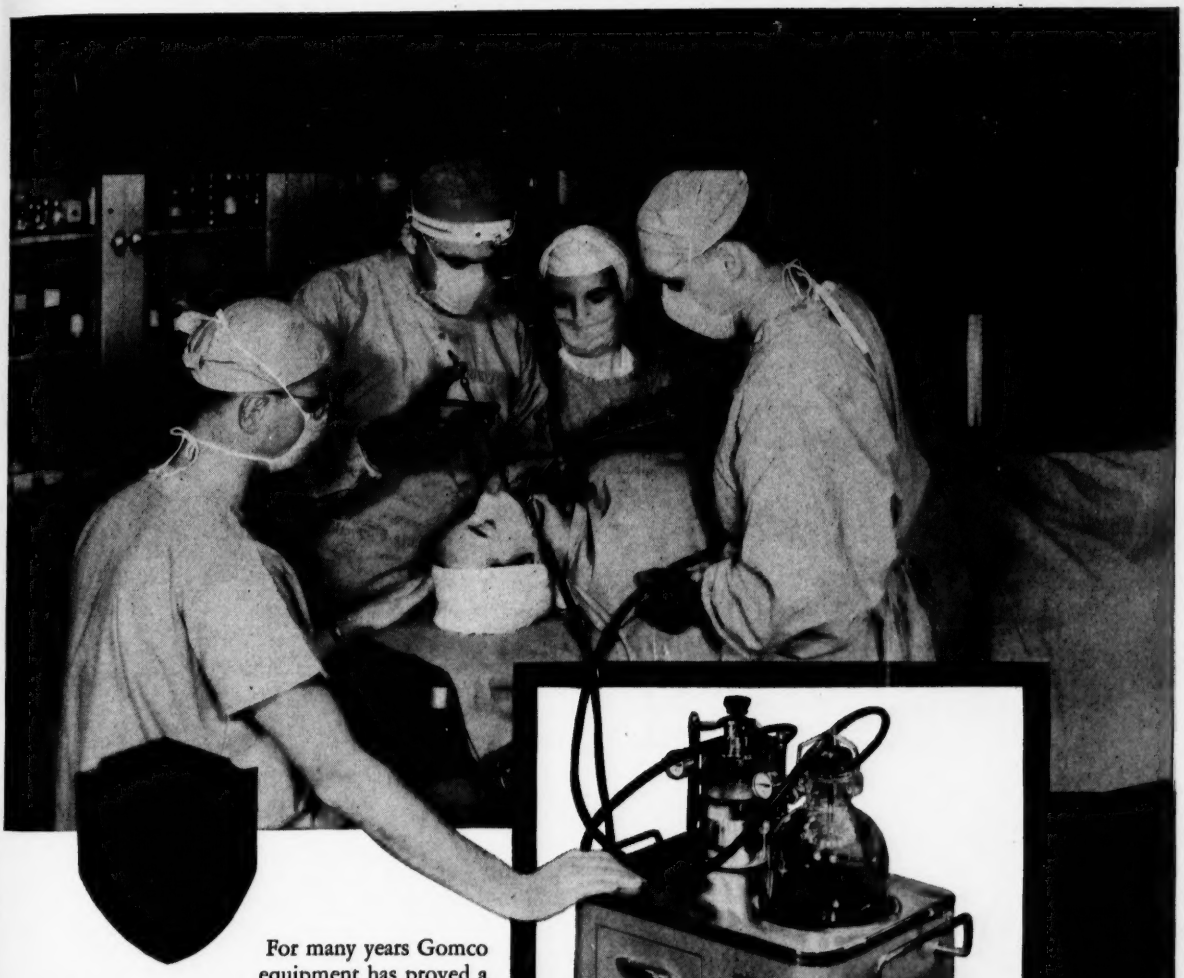
SHADE TREES and informal ornamental trees provide compatible scale with large building masses. Simple mass of foundation evergreens unifies various windows and shapes of walls.

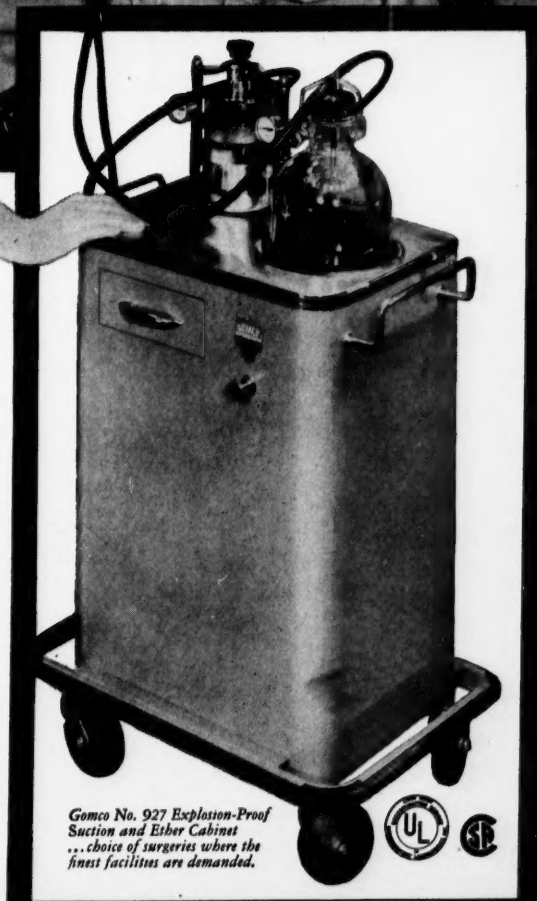
HOSPITAL LANDSCAPING

by **STUART M. MERTZ**
Landscape Architect
St. Louis, Mo.

LIVING, COLORFUL flowers create pleasant atmosphere for hospital visitors and passersby. Evergreen plants compensate for seasonal losses of color.

MANY PEOPLE think of "landscaping" as the mere planting of trees and shrubs around the base of a building. This "foundation" planting represents the popular conception of landscaping. Many buildings suffer from poor planting because the "designer" did not understand the basic elements of space design in relation to the building. Amateur designers do not think of the grounds as an integral space unit composed of various elements but think of planting only as a transition between the vertical wall and horizontal ground. They vary it somewhat so that it is not all one height or type and in many cases employ as many varieties as possible. Professional designers use plants to create space elements and vary them according to the dictates of their use and esthetic requirements. Not only do they use plants, but also the various other elements that are integral parts





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of the landscape—ground, architectural and water forms. In the best designs, all of these elements are conceived as a whole, all working together and complementing each other in proper proportion and relationship. One form does not cry out for attention, detracting from the other.

A professional landscape architect should work on the design team with the architect and engineer from the very beginning of the project to create the maximum effect, not just as a window dresser at the end. Basic space requirements are as important outside the building as inside, and the treatment of the internal construction elements — bricks and paint — remain more or less static in comparison to outdoor spaces which are dynamic and subject to changes in season, changes in size and changes in character. The landscape architect must foresee and be ready to provide for these changes.

Good Landscaping is Thrifty

The landscape architect can render efficient and complete service, if his services are sought at the proper time. Good design advice is the thriftiest part of a building construction program. Sound long-range construction planning necessarily includes landscape design and will result in a unified overall hospital design, not a disjointed positioning of all the design elements.

Outdoor space needs are varied. Drives, walks, service areas and spacious parking areas are needed for functional purposes. For light and shade, colorful plantings are useful to capture a visitor's mood, to create a setting for the building, and to blend it into its neighborhood surroundings and to help purify the air and deaden noise. The taller the building, the more horizontal ground is needed at its base for a space area of proper scale.

Obviously each hospital site has to be analyzed on its own merits. A city location seldom has sufficient space around it to allow space creation within its own property, and planting will be necessarily kept to a minimum. On large suburban or country sites, more space may be available than can be properly utilized and maintained. Climate and exposure to wind are important factors as well as circulation and safety of vehicular and pedestrian traffic. All must be carefully considered.

Ease of maintenance is a primary concern when selecting a landscape design. Maintenance should be held at a minimum consistent with good esthetic design. Ground surfaces must be free from erosion, both mud and dust. This can only be accomplished when original grading and drainage design is considered along with the final surface covering. Depending on use and visual effect, surface covers may be grass, paving such as concrete or asphalt, plants such as vines, shrubs or evergreens. Plants should be hardy, generally free from disease and insect infestation, not brittle nor subject to continuous wind or ice damage, and of controlled growth so that constant pruning is not required. If a plant complies with the above requirements, it will be hardy and require minimum maintenance. Unfortunately, many plants have to be replaced from time to time because of climatic conditions. The administrator must realize that beautiful landscaping requires periodic maintenance, just as much as hospitals' internal furnishings. A yearly budget should include funds for fertilizing, spraying, watering, pruning and replacement.

Why create a beautiful setting for a hospital? It is a public building, one of which the people of the area are or should be justly proud. Fortunately most people see a hospital only from the outside. If the hospital's outside appearance is neat and efficient, the public will be confident that its management practices inside are also efficient. Psychologically a hospital offers good public relations when it blends with its surroundings and is maintained to an equal or better degree than its neighbors. Colorful flowers in season will do a great deal to elevate the mood of patients, visitors, staff and the public. Colorful, gay touches are needed outside as well as inside a hospital.

. . . . Harmonious

A design setting naturally has the building as the focal point. All good landscape design should be subordinate to the building it surrounds and for which it creates a setting. It should harmonize in style with the architecture. Many nurserymen and amateur designers create planting incompatible with modern, contemporary style buildings.

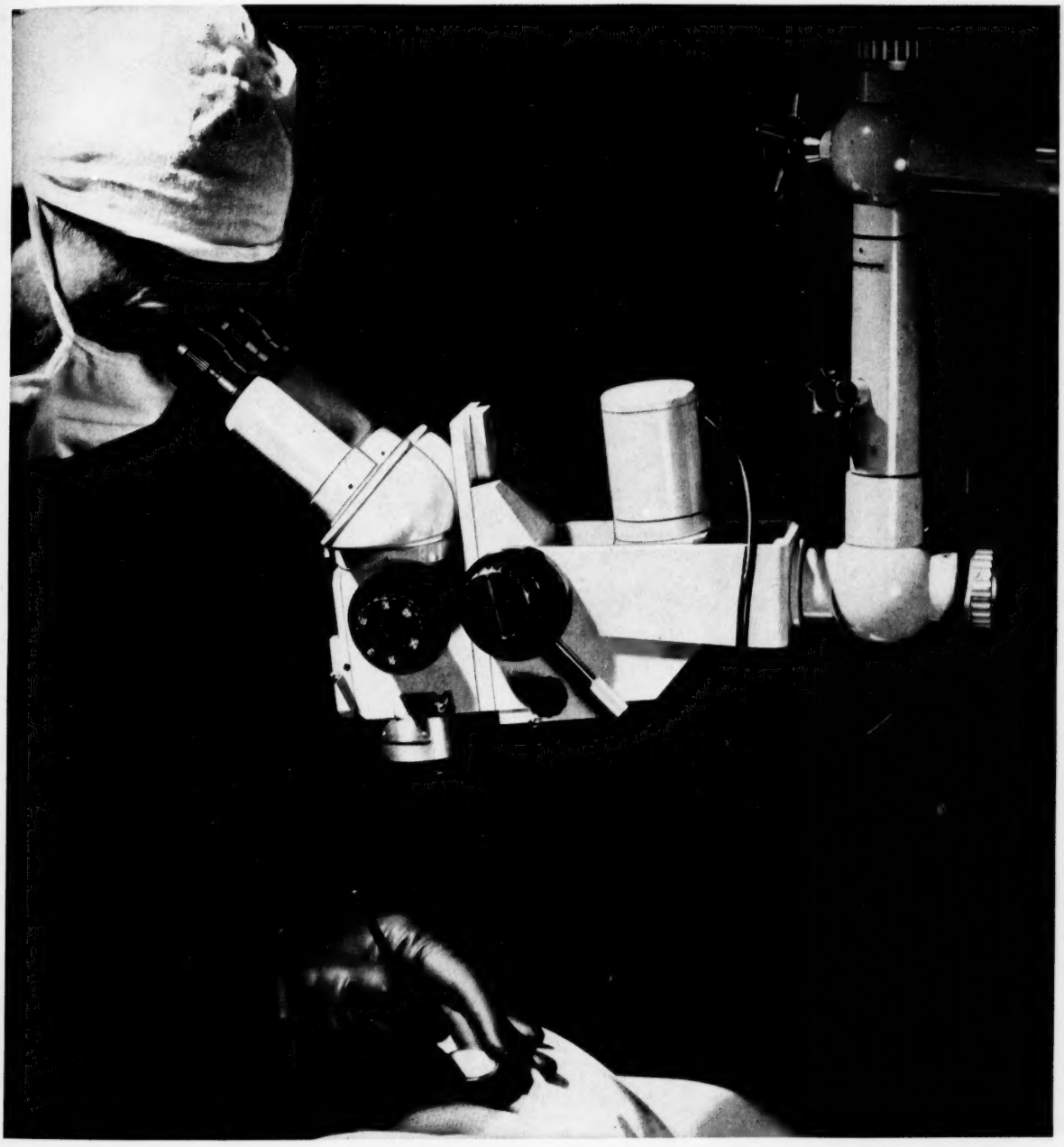
Symmetrical building facades may or may not call for a symmetrical planting or landscape space design. Asymmetrical building designs almost always call for an asymmetrical landscape design. Seasonal effects may vary the walls, floor or ceiling of the space design. Usually some evergreen plant material is used to create a green effect through the year. In southern climates, the general foliage masses may be the same throughout the year, whereas in the north the taller trees used for shade in the summer usually lose their leaves in the winter. Where possible, flowering shrubs and trees may be used to add their contribution of seasonal color from flowers or fruit. Fruits of some trees and shrubs make them undesirable for use on public grounds. Large buildings require large trees for proper seals. Small evergreens and bushes must be used in large masses to be in scale with the building.

. . . . Therapeutic

Views from hospital windows are important and should not be overlooked. The therapeutic value of green landscape elements is well known, and for specialty hospitals in which long convalescence or rehabilitation is required, landscape becomes even more important. Trees should be planted in large parking areas so that large masses of parked cars or paving do not spoil the views from upper windows. Unsightly elements on neighboring properties as well as hospital service buildings and areas should be screened wherever possible. Landscape is seen from all sides, top and bottom. Careful study is required to achieve design that is good from all viewpoints.

The importance of good sculpture and fountains or pools of water should not be overlooked as elements in the space design. They can be used as minor focal points or as details within the design of a major focal point. But they should not be of such proportion that they compete with major focal points for attention. Water adds sound as an extra dividend to the sensory perception of a scene. Water also has a cooling effect on air and thus helps control human comfort. This is especially important in certain climates.

Attractive and functional landscape designs fashioned by landscape architects to suit the hospital program and the hospital's environment will ensure the hospital management of a pleasing appearance for its hospital and efficient, thrifty long-range landscape maintenance. ★



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Laboratory Planning

An Appraisal

by **SISTER M. MARTINA, O.S.F.**
St. Joseph Hospital
Memphis, Tenn.

WITHIN THE LAST 10 years, laboratory medicine has undergone a tremendous change and growth. This increase in number and type of examinations required of a hospital laboratory has forced the average medical technologist to specialize. It has also greatly affected space and facilities.

New procedures require new reagents and nearly always new equipment. And new equipment demands space. Soon the working table area is being covered with various instruments and needed equipment. Work must go on, so an additional table is brought in and placed, perhaps, in the middle of the room. Traffic around the tables increases and technologists are hampered. Finally one of them remarks, "What we need is more space."

But how much space and for when —now, 1970, 1980?

Five years ago a new laboratory was planned for St. Joseph Hospital, Memphis, Tenn. After nearly a year's occupancy, certain inadequacies in the planning have become obvious. A brief listing of some of these advantages as well as some of the definite advantages may prove a help to others planning to build a new laboratory or expand their present facilities.

The new laboratory is located on the top (sixth) floor of the north wing. But its proximity to surgery and the excellent view are but two of its advantages. In order to accommodate patients, doctors and other hospital personnel the waiting room, laboratory office, B.M.R. and E.K.G. room, pathology office, outpatient and donor drawing rooms were placed as near the center entrance as possible. This arrangement also serves to reduce traffic throughout the department.

Practically all business and telephone calls can be handled satisfactorily in the laboratory office. In addition to phones, intercommunication master unit, and pneumatic tube service, the office also keeps a complete carbon copy file of all clinical laboratory and blood bank examinations performed for the current year. Other necessary telephone and intercommunication units are placed in convenient positions throughout the laboratory itself. This arrangement has been found most efficient.

The space allotted the blood bank usually is adequate and under normal conditions two technologists are able to work comfortably. However, due to increased blood transfusion therapy, there are times when the present physical layout slows down the work of turning out a large number of technically acceptable crossmatches within a specified limited time.

Special antibody studies are handled in the adjoining serology room. The routine hematology and serology has been changed from vena puncture to finger pricks. The change has proved economical since vactainers and disposable needles are now used. Now, the Coulter Counter is being considered, along with *space* for it.

The donor drawing room, because of large reclining chairs, has proved a true space conserver. The chairs have been found superior to tables or beds in terms of space, and also from a psychological point of view.

The bacteriology laboratory has proved satisfactory; two technologists enjoy using the new autoclave, wall cabinets, black formica topped cabinets and walk-in incubator. Suggested improvements might include: An adjacent media-making room in which the autoclave could be located; more table space for pouring plates, unless sterile disposable plated media can be afforded, and a walk-in incubator entrance from both rooms.

The space problem in the chemistry laboratory appears to be more acute than elsewhere. Since urinalysis is performed at the far end of the room, the remaining side cabinets and large center table can be profitably utilized. However, if an auto-analyzer is purchased within the near future, the present working area will have to be studied carefully and used wisely, or else the laboratory may find itself compelled to move special chemistries into a separate room. The gas, air and vacuum jets are located conveniently throughout the laboratory, but because they stick out over the counter, their presence prevents the use of certain necessary equipment in those areas.

The glass-washing room operates efficiently with a HW500 Heinicke Laboratory Glassware Washer, sterilizing oven, sink and work tables. There are two pass-windows, one for urine bottles and chemistry glassware and the other for histology laboratory glassware. A pass-refrigerator for specimens brought in, especially during the night has been considered.

Histology uses piped carbon dioxide from a special built-in hall closet containing large carbon dioxide cylinders. There is also a large storage area for specimens and jars. Disposable bags for tissue are not being used. Tables here have black formica tops, while those in hematology and the blood bank have light gray formica tops.

In general, the personnel are very pleased with the laboratory's location, physical arrangement and even the fiber-glass drapery throughout. There was some surprise when the expected, expandable space did not appear readily observable, especially within the individual laboratories. ★

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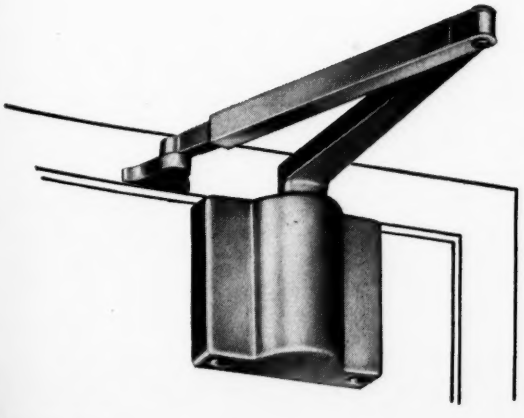

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The Five-Phase Program at St. Anne's Hospital, Chicago

by **DONALD J. PYSKACEK, Architect • Chicago, Ill.**

A FIVE-PHASE construction plan, an expansion program costing $3.5 million, is currently under way at St. Anne's Hospital, Chicago, Ill. Completion of the expansion program within two years will increase the hospital's present facilities by 31 per cent adding more than 100 beds to the present 312 beds. Two buildings will have been added. One, a six-story administration and solarium tower wing, attached to the existing building; the other, a new pavillion wing addition joining the older structure and integrated carefully with it.

Construction of the administration and tower wing building has recently been completed. The new pavillion wing, expected to be completed within 18 months, is divided into five phases: 1. Cafeteria remodeling, including arrangements for a temporary cafeteria structure; 2. boiler room remodeling including new boilers and a new receiving room; 3. new administration section with construction of a six-story elevator and solarium tower, and also remodeling of the first floor middle section of the existing building; 4. construction of a new six-story wing addition, and 5. remodeling of the surgery department on the sixth floor of the existing building, integrated with the new addition, and also remodeling of the x-ray department.

The cost of the first three phases, involving 18,000 square feet will be $500,000. The large six-story addition, which will increase the floor areas of the existing building by 80,000 square feet, will cost approximately $2.4 million.

The order and timing of the five phases were dictated by many factors. Comparative need was a complex question. St. Anne's has a greater patient demand than current capacity allows. The availability of funds with probable progress of the fund-raising effort was another factor. Another was the possible shifts in use of space for various departments. Parking was an extreme problem, with less than 50 per cent of the need available. Finally, it was necessary that the work proceed with minimum interruption of the continuing operation of the hospital. The efficient functioning of the staff could not be unreasonably hampered with construction noise, nor could the patients be disturbed.

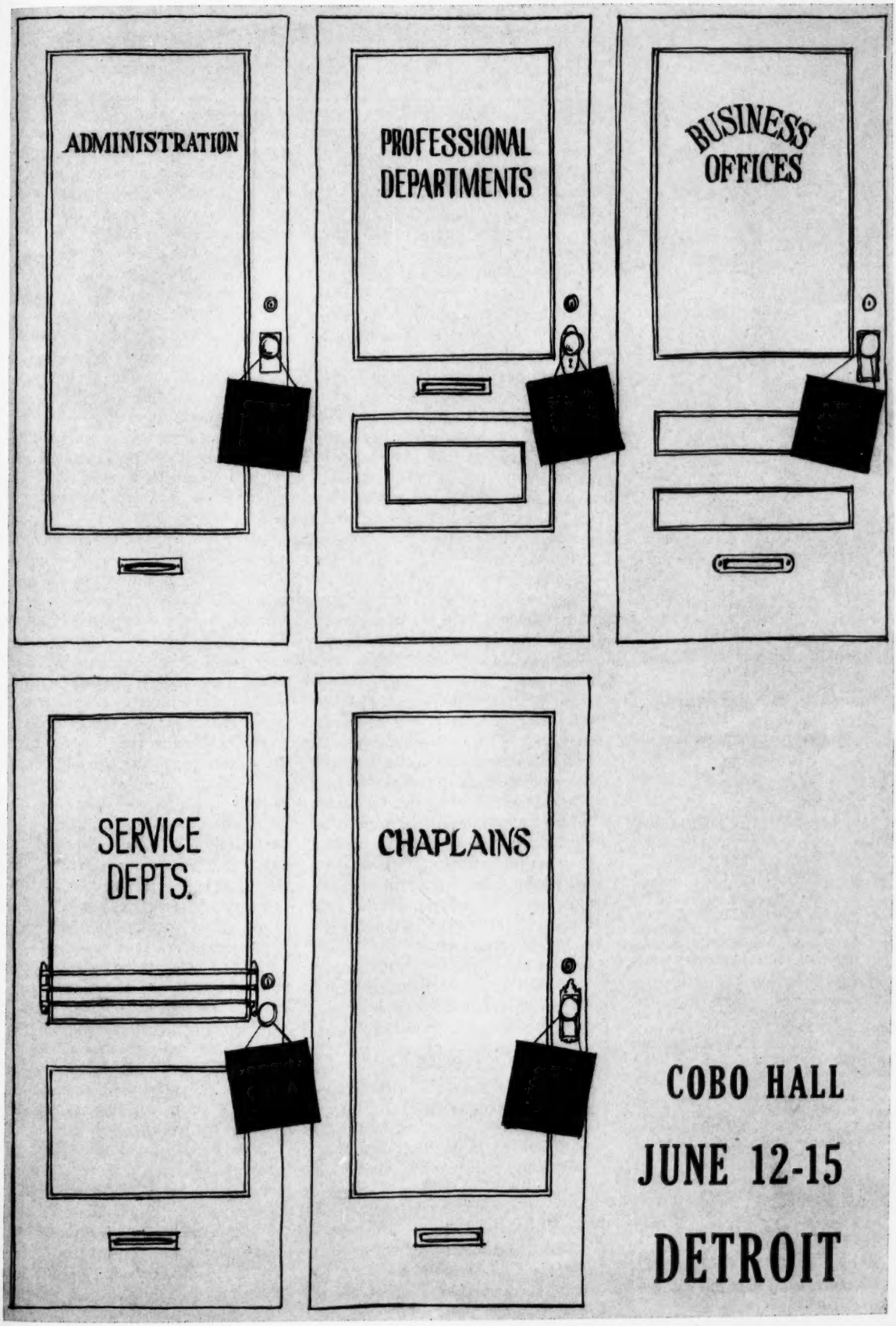
In order to give the planning board the necessary facts needed for comprehensive planning, involving a master plan of building that would meet the hospital's future needs, the hospital conducted a community survey. About the same time, the architect prepared a comprehensive itemization of all existing facilities in addition to the planned expanded facilities. Departmental committees were formed and consulted.

The present facilities at St. Anne's are housed in a six-story building constructed in 1927. The existing physical plant is of the type generally seen—the basic size of the floor is determined by the 30-plus bed nursing unit. On the first floor are crowded most ancillary facilities, such as the laboratory, x-ray, pharmacy, nursing service, cafeteria, admitting and all administration. The top floor contains the departments of surgery and obstetrics, grouped for natural north light.

When the remodeling and new addition construction are completed, St. Anne's will have one of the most flexible physical plants in the country. Entire departments will most efficiently be related to other departments in the floor planning. Bay widths and depths will allow the most functional grouping of beds and private rooms in relation to the nurses' stations and utilities. At the same time, the master planning provides the hospital with a logical and orderly pattern of growth. The nursing elements will be sufficiently separated from operating and adjunct service facilities.

Phase 1—the remodeling of the cafeterias—has proceeded according to plan without unforeseen complications. Partitions between small rooms were opened to provide one large, main dining area, capable of serving 250 persons in an efficiently planned and esthetically pleasing space. Dishwashing and cleanup rooms were added, as well as a new coffee shop to serve both staff and visitors on a 24-hour basis.

The appearance of the area was changed completely, incorporating such attractive new materials as ceramic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Phase 2—installation of new boilers and other related equipment—has provided for expanding boiler services to care for the entire new hospital plan. This required careful planning between the installation of new equipment and rehabilitation of the remaining old equipment. Continuous supply of steam was not interrupted enabling the hospital to operate the heating plant, laundry, central sterile supply, etc. A new receiving room, including circulation elements, such as elevators and stairs, is currently being added to handle supplies arriving at the hospital. Plans were timed to allow the contractor to accomplish the work within the three-and-one-half months, low-peak, summer season.

Phase 3—the completion of the six-story administration and tower solarium wing — provides the hospital with its main entrance and general lobby. The first floor allows for the administrative and business offices, doctors' lounge, medical records department, pharmacy and gift shop. The balance of the wing is devoted to new elevators, circulation and waiting space, with an enclosed solarium on all floors. Before work could commence on this phase, space had to be found for those departments occupying the area. After a careful examination of the hospital it was apparent that no existing space was available that would meet the requirements. A unique solution was found. A temporary building was erected in an area suitable to continue the function of the first floor facilities. This building first served as a temporary cafeteria and is currently serving as an administrative and medical record departmental area.

Phase 4—construction of the new six-story and basement pavillion addition—will be used for bed space and also diagnostic and therapeutic facilities, and an outpatient department. Laboratory facilities will occupy the first floor.

A central sterile supply room, a sterile storage work room, an unsterile room, linen room, equipment room, etc., are also included in the plans. The physical therapy department in the new addition will contain the latest equipment, Hubbard tanks and exercise areas. Lockers and lounges for nurses and other personnel, an outpatient department, eye-ear-nose-and-throat department, proctology room, immunization room and an emergency suite, with an emergency operating room, are also being planned.

The second floor of the new unit will contain 37 beds connected with the department of urology; 13 two-bed rooms; two four-bed rooms; three private rooms, examination room, medicine room, waiting and day room, nursing station, etc.

The third floor will provide for 36 beds—24 beds of the intensive care unit and adjunct facilities.

The fourth floor will allow for 37 beds for surgical patients.

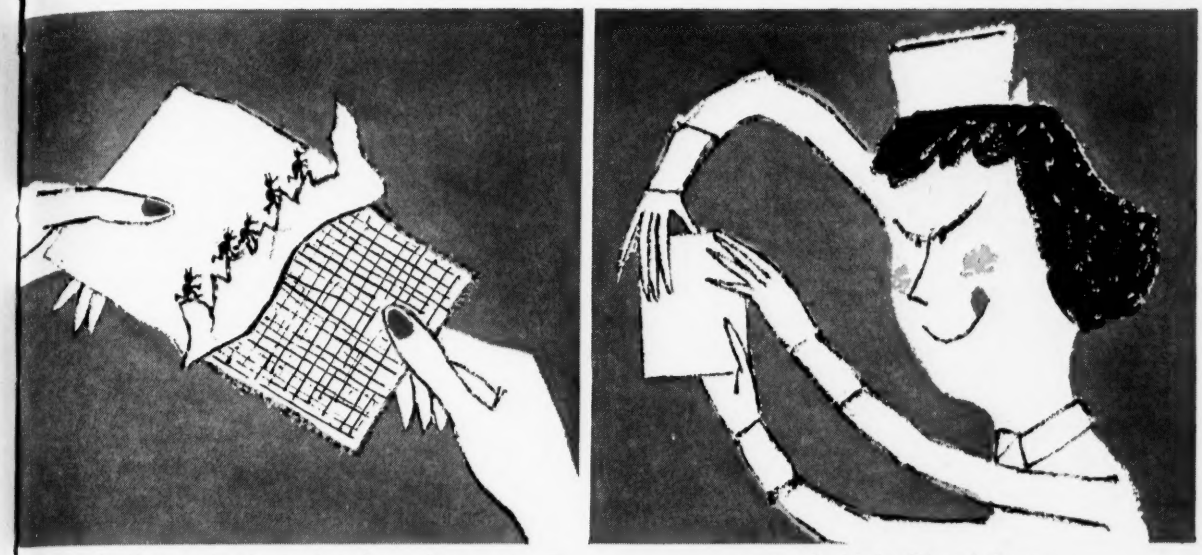
The fifth floor will house the O.B. department and have eight two-bed labor rooms, four delivery rooms, and nurses' and doctors' lounges.

Phase 5—remodeling and construction of surgical facilities—provides for eight major operating rooms, post-operative rooms, utility rooms and special services, such as inhalation therapy and frozen section labs on the sixth floor.

The new wing will have floors of the same level as the older building, and although of more contemporary design, will integrate well with the facade of the existing structure. The connecting link will not only provide access and horizontal circulation, but also contain vertical circulation elements such as a stairwell and elevator.

Temporary partitions will be erected at the ends of corridors while the new structure is being completed. This will allow the new pavillion to be constructed completely, including finishes and equipment without disturbing the existing hospital operation. The connecting link also isolates construction noise and vibration from the existing structure. Services and access to the site will not be interrupted.

Both buildings will be reinforced concrete structures, using brick, stone and aluminum sash. Interiors will have plaster and ceramic finishes for ease of maintenance and esthetic values. The new construction will have acoustic ceilings, terrazzo and vinyl floors and recessed lighting fixtures, and will be fireproof and air conditioned. ★



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St. Jude's Builds to Keep Pace With Progress

by **HARRY WIDMAN, A.I.A., Vice-pres., Welton Becket & Assoc. • Los Angeles, Calif.**

WHEN THE Sisters of St. Joseph of Orange decided in 1955 to construct a hospital in Fullerton, Calif., 125 beds seemed more than adequate. At that time, Fullerton was a city serving the northern Orange County citrus area of relatively sparse population.

By the time the hospital was opened in 1957, however, the exploding growth of adjoining Los Angeles County had spilled over into Orange. Citrus groves were cleared away and housing tracts took their place. Southern California's burgeoning electronic industry began to erect new plants in the area. Fullerton became the center of a sizeable and still-growing population concentration.

Within a few months after St. Jude Hospital opened its doors, it was evident that expansion would be needed to ease the critical shortage of hospital facilities in the area of North Orange County. The hospital board determined that St. Jude should not only meet but keep pace with the area's growth and that it should provide the most complete hospital facilities in that part of Southern California.

But how much of an addition was needed and how could it best be accomplished? Sister Jane Francis, C.S.J., hospital administrator, established a planning team consisting of the administrator, the various hospital department heads, a director of medical planning and a project designer.

The team determined that immediate demands justified doubling the number of beds, from 125 to 250, and that provision should be made for future growth. Before any construction planning was begun, the architects conducted an extensive survey of the existing departments to determine additional area requirements necessary to service a 250-bed hospital. The survey was conducted in the form of an area analysis so that the analysis later served as a budget of areas for each department.

The survey indicated that an additional 60,000 square feet of space would be required. After thorough study, the planning team indicated that some of the existing departments would have to be transferred to the new addition in order to handle the additional patient load, and the existing kitchen would have to be enlarged and completely rearranged to improve food service. Since the existing five-level hospital building apparently had not been planned for expansion, and since the foundation and structure were unable to support additional floors, the planning team decided to construct a new lateral unit.

Previous to locating the new unit on the site, a long range site development program had been planned by the architects so that the future growth of the hospital complex would be orderly, efficient and potentially esthetic. The master plan provides for a rehabilitation unit, a heart research unit, an auditorium, residents' quarters, nurses' quarters, a chapel, parking areas and automobile and truck circulation patterns.

The new wing will connect to the west end of the existing hospital by means of a glass-enclosed bridge which will join the two units at every floor. The new unit will provide excellent staff circulation, abundant natural light, and will allow for horizontal expansion as demand for beds increases.

The surgical suite will be moved out of the third floor of the existing hospital and placed in the lower floor of the new unit. This will allow for a larger, fully integrated surgical suite. Central sterile-supply and pharmacy will be moved from the second floor of the existing unit to the lower floor of the new structure, where they can function as a unit of surgery. Included in the surgical suite are five major operating rooms, one designed especially for open-heart surgery, and one cystoscopy operating room. The vacated surgical suite will prove an excellent basic unit for an expanded delivery suite. Obstetrics will, therefore, be relocated from the fourth floor of the existing building to the third, with all nurseries and additional maternity beds on the corresponding level of the new building.

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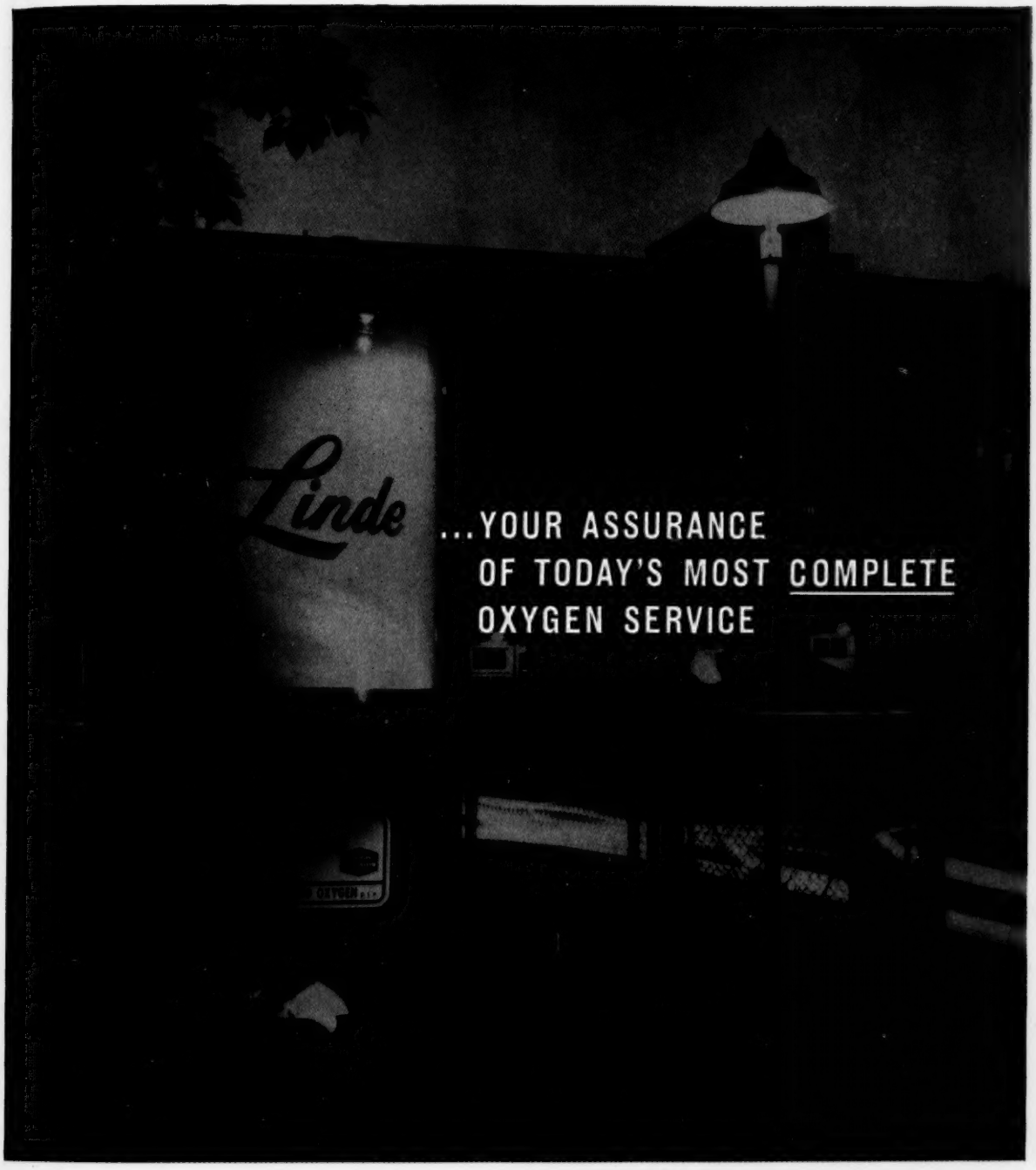

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dition will be made to the kitchen and boiler room which are located in the lower floor of the existing hospital. The top of the underground addition will be landscaped as a colorful roof garden. The architect's food facilities planning department has completely redesigned the traffic flow and food handling methods in the larger kitchen, and the entire mechanical and boiler room facilities will be enlarged.

Two considerations directed the transfer and expansion of all departments: 1. The maximum over-all efficiency and integration of the expanded hospital facilities, and 2. a minimum of disruption and alteration of existing facilities.

A limited budget established at the schematic stage was followed. In the relocation and expansion departments, an effort was made to use as much of the existing equipment, partitions, and cabinetwork as possible, consistent with the limited budget.

One of several problems was the alterations and expansion of the central kitchen. New equipment and work areas were needed to increase the food preparation capacity within limited areas without disturbing the existing equipment or interrupting food service. The increases were obtained by relocating the dish-washing area, which made it possible to rearrange the food-cart loading facilities. Relocation of the bakery to the food storage area provided space for a larger and more adequate meat preparation department. In re-planning the kitchen, a separation of traffic was effected by providing a different entrance for the dish-washing area than that used for food-cart service.

The new unit will be completed and all departments to be relocated will be moved into the new building before any alterations are begun in the existing structure. This will allow the addition and alterations to take place without interfering with normal hospital operation.

The fully air conditioned new wing was designed on a double corridor, central core plan, with centrally located utilities accessible from either corridor.

The second level is divided into three major areas: a cardiopulmonary and electroencephalography suite, intended primarily for outpatients; an emergency suite, with a large emergency operating room, observation beds and a separate waiting area, and a central laboratory.

A 40-bed medical nursing unit is located on the third level. The two passenger elevators in the service core empty into the central lobby which is directly controlled by a centrally-located nurses' desk. From this location, one nurse can also control traffic entering the floor through the bridge from the other building. Patients' rooms, each with toilet facilities, are located around the periphery of the building. All rooms are designed for two patients, except for two four-bed rooms and two single-bed isolation rooms. Each nursing floor has a solarium and all rooms feature a full room-width window exposure.

The fourth level contains the maternity nursing unit and with the alterations to the existing hospital provides 57 obstetrical beds and 58 bassinets. Six normal nurseries, each for eight babies, are arranged at one end of the floor, together with two premature nurseries and one isolation nursery. Every two nurseries are joined by a connecting examination room and work room.

The top level of the new wing will contain a 40-bed surgical nursing unit, similar to the same-size medical unit two floors below.

Exterior treatment of the new wing will feature continuous horizontal bands of aluminum-framed sliding windows with blue concrete spandrels. The windows will be shaded from the sun by precast concrete panels with exposed aggregate surface which will extend parallel to the face of the building, held out four and one-half feet by a continuation of the floor slabs. The sun shades will be separated by white, free-standing exposed concrete structural columns, designed by the architects to be outside the building so that interior walls are column-free.

Extension of the top three floors across the entrance driveway has created a gracious covered automobile entrance and terrace, with a walk-way, wheel-chair ramp, and a 48 foot long concrete-block planter. The main entrance to the hospital, however, will remain in the existing building.

Parking will be increased during the current expansion to allow for 302 automobile spaces. Car and truck traffic circulation patterns on the grounds are being completely changed as a result of master plan studies by the architects in order to separate passenger traffic from service traffic, to simplify access to the passenger entrances and to the parking area, and to relocate service activities away from patient areas. ★

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The President's Message

by **GEORGE E. REED, LL.M., K.S.G., Associate Director**
Legal Department, N.C.W.C. • Washington, D.C.

PRESIDENT KENNEDY'S special message on health and hospital care, delivered to Congress last month, emphasized the proposition that "the health of our nation is a key to its future—to its economic vitality, to the morale and efficiency of its citizens, to our success in achieving our own goals and demonstrating to others the benefits of a free society." He observed that the amelioration of the harsh consequences of ill health is a matter of national concern.

The President recommended the enactment of a health insurance program under the Social Security System which will provide the following:

"First, inpatient hospital services up to 90 days in a single spell of illness, for all costs in excess of $10 per day for the first nine days (with a minimum of $20), and full costs for the remaining 81 days. Because hospital costs place by far the heaviest and most unmanageable burden on older persons, it is these services that should receive major emphasis in any health insurance program.

"Second, skilled nursing home services up to 180 days immediately after discharge from a hospital. To provide an incentive for use of these less expensive facilities, an individual could, in short, receive two days of skilled nursing home care in place of one day of hospital care when this satisfies his requirements.

"Third, hospital outpatient clinic diagnostic services for all costs in excess of $20. These services, too, will reduce the need for hospital admissions and encourage early diagnosis.

"Fourth, community visiting nurse services, and related home health services, for a limited period of time. These will enable many older people to receive proper health care in their own homes."

These benefits would be available to all persons 65 or over who are eligible for social security or railroad retirement benefits. The program would be financed by an increase in social security contributions of one-quarter of one per cent each on employers and employes. The plan also recommended that Congress increase the maximum earnings base from $4,800 a year to $5,000.

The President's message emphasized that the recommended health program will not interfere with freedom of choice with respect to hospitals or doctors. Moreover, he asserted there will be no attempt to regulate medical fees nor to supervise or control the manner in which medical services are provided by a hospital.

The President recognized that the program of medical care for the aged will require a substantial expansion of nursing home beds. Accordingly, he recommended legislation to Congress which will double the present authorization of $10 million in matching grants for the construction of nursing homes. As another corollary to the program for the aged, the President made a strong recommendation for the improvement of nursing home and home nursing services:

"I am proposing stimulatory grants to the states, and through them to the communities, to improve the quality of services in nursing homes—to develop organized community home-care health services for the aged and chronically ill—to develop health service information and referral centers—to train additional personnel required for out-of-hospital health services . . ."

To insure rapid development of this program, President Kennedy proposed that the Congress enact legislation enabling the Public Health Service to create a new Bureau of Community Health to provide leadership and assistance to states and communities.

No recommendation was made for the expansion of hospital facilities. On the contrary, emphasis was placed upon hospital research and development. The message indicated a need for more intensive regional and area planning to obtain the maximum economic uses from existing structures and research into methods of providing for more efficient utilization of hospital services. The message indicated that legislation will be submitted to the Congress to determine each year the amount necessary for the accomplishment of these purposes, and that the Surgeon General will be authorized to make project grants for the construction of "experimental or demonstration hospitals or other medical facilities."

An important section of the message dealt with the necessity for increasing health personnel. The President urged that enrollments in medical schools be substantially increased within the next 10 years and also noted the need for at least 20 new medical schools and 20 new dental schools. He recognized that this cannot be accomplished without federal assistance, both to the institution and to students. Accordingly, he recommended a 10-year program of matching grants to assist in the construction, expansion and restoration of medical and dental schools to increase their capacity. The program would make available $25 million in the first year and $75 million annually thereafter. Scholarships were recommended for talented medical and dental students in need of financial assistance:

"Federal funds would be available for each institution in a total amount equal to $1,500 for one quarter of the newly-entering students, to be awarded in individual

(Concluded on page 177)

his own 3-number code into the nearest register and indicate whether he is entering or leaving. This information is stored in the "memory" unit and is instantly available at *any* register. If there are messages for a doctor when he uses a register, a blinking light alerts him, and he may speak to the message center by 2-way intercom. The use of a central "memory" unit makes possible significant economies in wiring.

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zoned paging. A sequence of zoned pages will usually locate a doctor without disturbing the entire hospital. A typical sequence might be: obstetrical suite . . . maternity ward . . . doctors' lounges and dining rooms.

localized paging. This system operates as above—with this exception: On floors or wards served by nurses' stations, paging is restricted to the duty area. The nurse completes the page by selective use of the nurse call system. This method gives maximum quiet in patient areas.

5. Make the hospital environment more congenial

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6. Speed internal action; keep telephone lines free

Reliance on the telephone for internal communication in the hospital often results in delay and switchboard congestion. Efficiency requires a channel of communication independent of the telephone . . . in order that administrators may have direct contact with heads of departments . . . that related departments be in instant touch with one another . . . that there be adequate intercom facilities within departments.

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7. Expedite out-patient, clinic and emergency service

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Hospital_____

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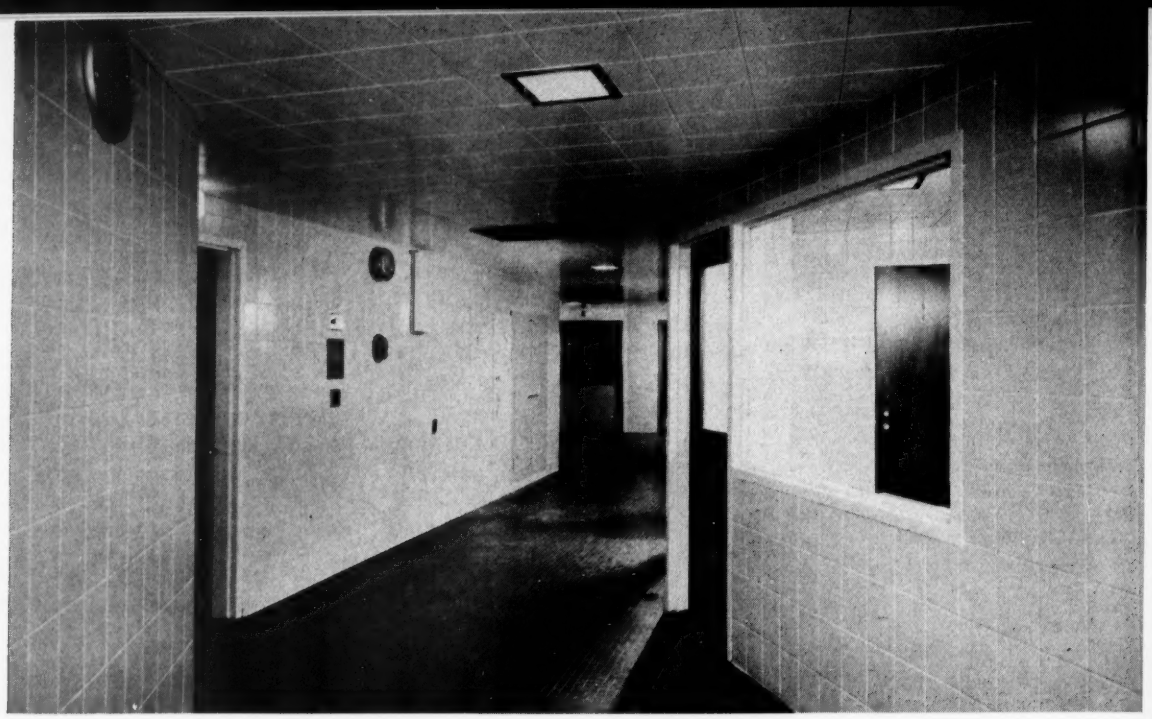

CORRIDOR utilizes conductive mosaic floor tile and glazed wall tile.

The Trend in Hospitals is to Tile

by LAMAR H. BROWN*

UNTIL THE 1950s, the preference for tile in hospitals was confined almost exclusively to lavatories and operating rooms. Today, there is hardly an area in modern hospitals where quality domestic-made ceramic tile does not appear as flooring, walls, table surfaces and countertops. It is found in corridors, private rooms and wards; solaria and special treatment rooms; kitchens and cafeterias; sun decks, walks and terraces; laboratories and x-ray rooms; refrigeration and sterilization rooms; the pharmacy and laundry. In short, just about everywhere.

Within the past 10 years alone, the square-foot use of tile has more than doubled. This upswing in the popularity of ceramic tile is significant. Nor is it hard to understand why. The reasons for the over-all trend toward tile are basic: Low maintenance, long life, sanitation, safety, beauty and research.

1. *Low maintenance.* There is no flooring surface easier or less expensive to maintain than ceramic tile. It requires no special surface treatment. All that is needed is a mild detergent and water. Nor does it require waxing, polishing, buffing, sealing or sanding. As a matter of fact, as a tile floor ages, maintenance becomes easier because with time a patina forms on the surface which gives a "soft shine" and keeps the floor fresh-looking longer. Even if a tile floor is poorly maintained, there will be no serious damage. On other types of flooring, neglect can mean extensive repairs if traffic has cut through the sealer. But with tile, a good washing will bring the "shine" back.

2. *Long Life.* Tile is manufactured from clays, shale and other ceramic materials and is fired at temperatures 2,000° to 24,000° F. What is left is fused, inert and unaffected by chemical reaction. It is an inorganic material untouched by acid, alkali or any strong solution. Exposure to the elements cannot affect weatherproof tile. There are ruins from antiquity that have endured all types of exposure and are still in good condition. Glazed wall tile is 50 times as hard as the cold-glazed paints or enamel paints. Unglazed floor tile is 30 to 40 times as hard as asphalt tile and has resistance to abrasions. The Bureau of Standards in Washington has a test ramp in a heavily-trafficked area, made up of different types of flooring. Tile is no longer used in the test because it never showed any marks at all.

3. *Sanitation and Safety.* In a hospital, sanitation is most important. Because ceramic tile is such a hard surface, bacteria remain on top and are easily removed by simple cleaning. Furthermore, the portland cement

*Mr. Brown is architectural director for the Tile Council of America, Inc., New York, N.Y. Photos courtesy of the Council.

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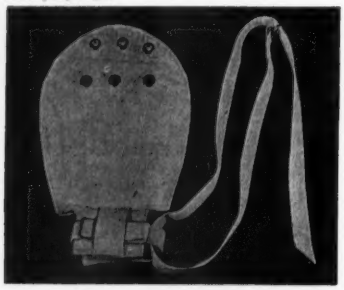

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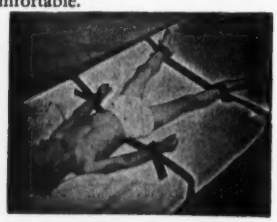

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In operating rooms there is need not only for ease of maintenance and sanitation, but also for properties that offer protection from static electricity and other shock hazards. Conductive ceramic tile meets all these requirements. In addition to being impervious to stains, foreign matter and bacteria, its electrical properties are carefully designed so that there is a minimum resistance of 25,000 ohms to protect against electrical shock, and a maximum resistance of one million ohms (a megohm). Within this range of resistance there is complete protection against static electricity's building up and causing a spark—a major cause of anesthetic explosions. The added density of ceramic tile increases resistance to sound transmission, thus contributing to the quiet atmosphere so important in a hospital room or ward.

4. *Beauty.* Ceramic tile is becoming increasingly popular in hospitals because of the wide variety of attractive, soothing colors available. There is a trend today away from harsh monocroms toward blends of harmonious colors which soften the appearance of walls. There is almost as wide a range of tile sizes as colors; these can be adapted to the size and shape of any room. There are vertical ascents and horizontal; random and formal patterns. Another thing: most tile-setters are members of the old school of artisans who take real pride in their work, and respond to ideas that tend to enhance the beauty of the floor or wall they are making.

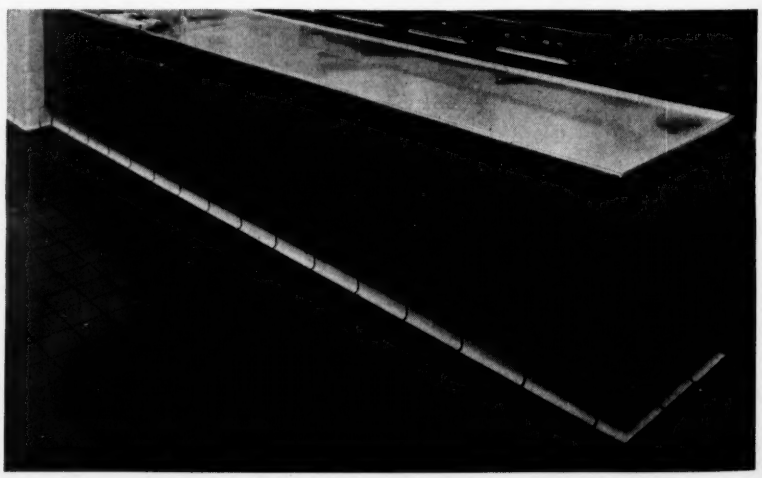
5. *Research.* Among the most important factors behind the recent swing to tile in hospitals are the improvements stemming from research in this area. Eight years ago, the Tile Council of America started a Research Center at the Rutgers University School of Ceramics. Then, three years ago, the Council opened its own laboratory at Princeton, N. J., where engineers, architects and tile experts are working constantly to develop new ideas, installation methods and materials for installation.

For example, one of the Research Center's latest developments is a dryset mortar which reduces costs of installation by some 25 per cent. The dryset mortar eliminates pre-soaking of tile. The tile can be applied directly to a concrete block or masonry wall without preliminary spraying or wetting down of the surface. A special additive makes the mortar superior to ordinary portland cement mortars in bond strength, adjustability and ease of working. Unlike adhesives, dryset mortar does not require the use of solvents, which makes it ideal for working indoors in close quarters.

The Tile Council Research Center also has developed a stain-resistant grout based on an epoxy resin and acid-alkali resistant grouts and bonding materials. In addition, it has initiated new and better specifications for both existing and advanced methods of installation.

These are just a few of the more recent developments due to research that make tile walls and floors more practical and less expensive. This continuing program of testing, probing, innovating is but another reason for the increased popularity of ceramic tile in hospitals, as well as other public buildings and homes. ★

COVED TILE around base of cabinet facilitates cleaning.



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- ☑ NURSING SUPERVISORS
- ☑ PHARMACISTS
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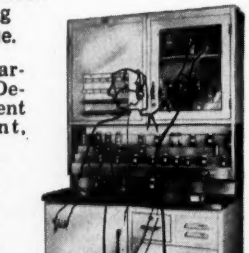

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MECHANICAL DESIGN

(Begins on page 76)

Since any disaster, by its very nature, would throw an increased burden on the hospital, it has become imperative that each hospital have electrical generating capacity sufficient to maintain normal service facilities for extended periods of time. If hospital accreditation authorities pursue their present concern over disaster planning, it is certain they will scrutinize in greater technical detail than ever before the complete emergency electrical resources of hospitals. The current design trend, then, is toward greater self-sufficiency for the hospital.

Again, in this area of electrical service, the Operating and Delivery Suites need special attention. They must comply with the requirements of the National Electrical Code and prevailing local codes. The architect will provide a conductive floor, but the engineer must specify and design the proper electrical items to meet code requirements. Various guides issued by the National Board of Fire Underwriters point up this need for specialized wiring. The operating or delivery room lamp, for example, should be on a separate circuit and carried on the emergency lighting system. The general lighting, of course, may be on the general system, but the switching device should be out in the corridor, outside the hazardous area. The receptacles must all be on an isolated circuit with ground indicators and must be explosion proof if below the specified level. Local and state codes should be consulted for variations in these requirements.

Maintenance and Modernization

Maintenance also poses certain problems in terms of hospital mechanical design. Almost without exception, majority of complaints from the time a facility is first occupied until its services are terminated are those involving mechanical items—the lighting is deficient, the plumbing fixtures improperly located, the heating system inadequate and the air conditioning system troublesome.

Unfortunately, all too many hospitals today have mechanical equipment which is either outmoded or else too complicated and elaborate. Such facilities have thrown a large burden of maintenance upon hospital engineering personnel and, on an actual accounting basis, are more expensive to operate than might at first appear. In some hospitals, outmoded equipment is not even being used. What, then, is to be done?

With building costs today so high, consideration should be given first to the possibility of revamping or modernizing the existing hospital structure, including the mechanical and electrical equipment. Not only is it certain that usable floor area will be gained following such a project, but the installation of better control systems will benefit hospital operations markedly. Before proceding, an engineering survey should be conducted—one that will point out deficiencies, poor economies, high operational costs and dangerous situations. Consultation with a mechanical engineer regarding the selection and purchase of replacement equipment will save the hospital money in the long run. Above all, there should be planning and coöperation. For, only by working hand in hand, is it possible to guarantee a unified function, a reduction in waste effort, and a mechanical design that is practical and efficient in modern hospital operations. ★

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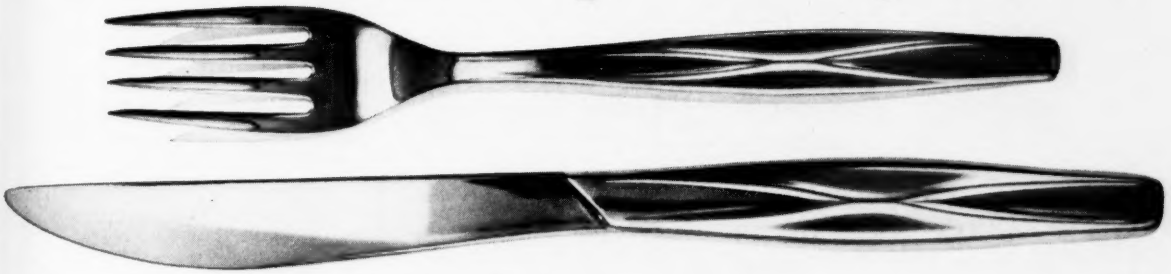

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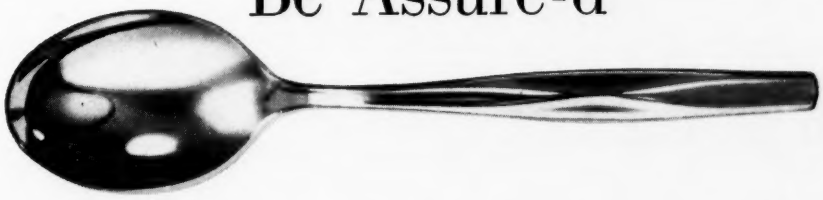

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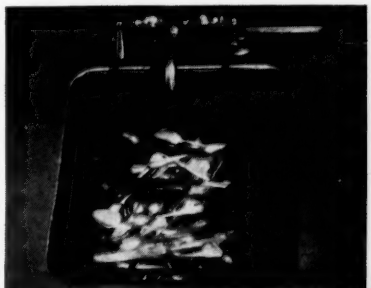

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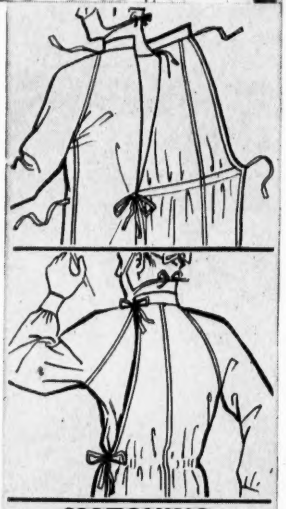

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H3

MILIEU THERAPY

Robert W. Jackson

(Begins on page 82)

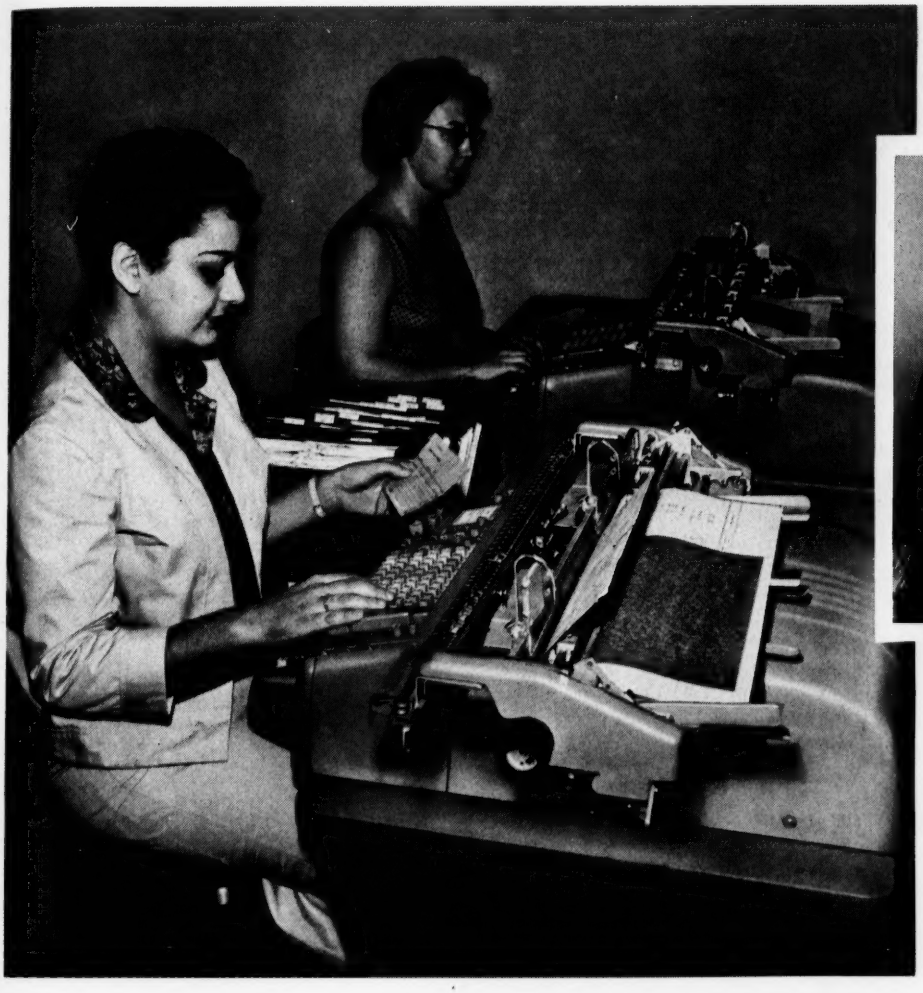
partition and down through the ceiling of the adjacent room if care is not taken. Patients should be given as much sound isolation as is possible in their private rooms.

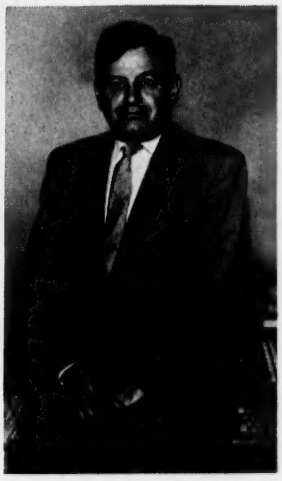
The corridor is a source of noise emanation as well as transmission. Proper control here would be to provide acoustical ceilings, carpeted floors (just like home, perhaps?) and an occasional change of wall material to help break up sound reflections. Tiled corridor walls are definitely not acceptable for sound control and tend to preserve the institutional atmosphere. A floor carpet will help to soften the harsh, sterile lines of the hospital unit. A judicious mixing of corridor wall materials can help to foreshorten, visually, a long and sometimes bleak corridor.

A Combined Effect

The lighting can contribute much to the achievement of this goal. Lighting is needed that will accent and complete the theme—warm, intimate and friendly; not large, impersonal and uniform, such as is found in commercial establishments. The use of fixtures of institutional character should be avoided. Corridor lighting should not march down the center in a monotonous regularity that accepts the length, but it should be subdued, indirect or even emanate from invisible recessed spotlights or a cove. This type has been used to illuminate patient artwork hung on the corridor walls and, at the same time, helps break up the long corridor length.

The selection of paint colors and fabrics should be in the hands of an expert who understands color dynamics and the problems of color perception in psychiatric patients. Color creates moods; therefore, the colors, wall materials and fabrics for each social area must be selected to compliment the intended function, lighting and exposure. Each social area should be considered separately, but it must also be designed in conjunction with the overall pattern of the unit so as to attain continuity throughout. Room perspectives may be materially altered by the use of colors that appear to recede or come forward. Color contrasts and textures in fabrics and wall materials





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can add immeasurably to the delight of any room.

The design of individual patient rooms is too often neglected, being considered as fairly standard with little need for improvement. But this private room must perform many functions and should be studied carefully. The room must be versatile since it must serve as a bedroom, a study, a place to entertain guests, write letters, read, listen to the radio, etc. Adequate storage for clothing should be available; space for books, a radio and the display of pictures and other personal effects should also be provided to encourage a continuing interest in the home and society.

Individual tastes in furniture arrangement should be encouraged for ambulatory patients. This implies that the design should have several possible arrangements. The room should be more like a residential bedroom in terms of physical layout, dimensions and feelings. It might possibly have a convertible couch-bed, a rug, an easy chair, reading lamp, private toilet with lavatory, a closet and drawer space.

The matter of proper ventilation should not be overlooked. Odors emanating from the main hospital, as well as those from within the unit, can be eliminated by proper design. The sterile "hospital" smell has no place in this area. The exhausts from the main kitchen, laundry and hospital should be placed after considering the fresh air intake for the psychiatric unit and the prevailing breezes. All interior rooms, toilets and "wet" rooms, require ventilation, as do all patient areas. Proper housekeeping and the judicious selection of materials will also aid in the control of odors.

A final consideration should be the nurses' station. The traditional enclosed and somewhat forbidding station seems to speak of separation instead of integration of staff and patients. A low, open, desk-like station would seem to encourage contacts between nurse and patient and thereby strengthen the total therapy program. Separate rooms behind the open station could take care of medicine preparation, charting and conferences.

Team Investigates Details

Many of these concepts of an open psychiatric unit are being incorporated into the treatment facility for the new St. John's Hospital, St. Louis, Mo., which is now under construction. Architect for the project is Bernard McMahon, with Gordon A. Friesen Associates as the consultants. Of special interest is the hobby room located directly across from the nurses' station. Patients will be encouraged to use the art and craft materials in this room at any time. This means that the patients' creative moods will not be limited by a rigid time schedule.

In summation, the architect's role in milieu therapy design should be that of a member of the design team that investigates the meaning, intent and physical requirements of the proposed treatment program. Every aspect of the nursing unit's environment and its effect upon the patient and staff must be examined in minute detail. The written architectural program that results from this careful study should interpret the treatment program in terms of the space and social environment needed to enable the medical and paramedical personnel to carry out the intended therapy.

This approach is truly based upon the total needs of the staff and patients and should result in a functional and socially significant structure. ★

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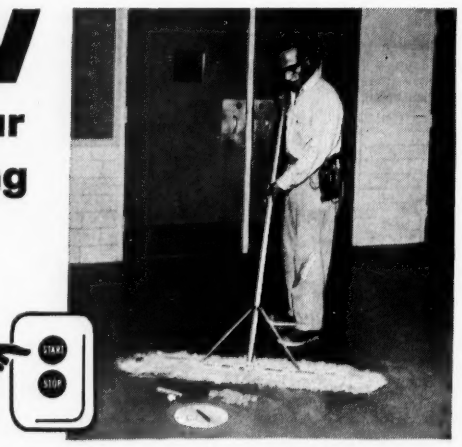
by pushing a button



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For a Healthier Environment through Modern Chemistry

MODERN HOSPITAL LIGHTING

(Begins on page 88)

it on as needed, a noiseless switch should be used.

When a doctor on evening rounds simply feels his patient's pulse, looks at his fever chart and chats with him about how he feels, the lighting demands obviously are not severe. However, if a dressing must be done or a careful physical examination made, the doctor may need a high level of illumination (at least 100 footcandles) on the whole patient. Or he may need light concentrated on a smaller area or in a particular direction. No single piece of fixed equipment can meet these varied demands; they call for a portable luminaire. Some portable luminaires used for reading are so designed that they also can be used for examination lighting.

Postoperative Lighting

Where the patient is taken from the operating room to a special recovery room, the lighting should be designed to furnish a low illumination level. At the same time, the illumination must be such that the nurse can observe the patient's condition and his dressing. An indirect luminaire supplying three or four footcandles at the bed should prove sufficient.

When the patient returns directly to his own room from the operating room, special consideration must be given postoperative lighting. The night light will provide too little illumination and the general lighting luminaire too much, unless it has provision for two illumination levels. If the reading light is sufficiently adjustable it can be turned toward the ceiling and the lamp replaced by a smaller one. If necessary a portable luminaire can be brought in for the postoperative period to supply indirect lighting.

From a lighting standpoint then, the patient's room has need of the following: General lighting, reading light at bed, reading light at chair, night lighting, examination lighting and postoperative lighting. There are many ways in which these lighting needs can be met, such as, combining two or more functions in a single luminaire. In planning any proposed lighting installation, however, these needs should be studied and appraised in order to ensure the most effective and efficient use of modern illumination principles and methods. ★

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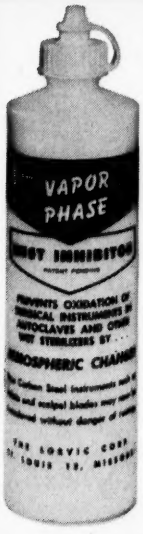

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(Begins on page 92)

function is to supply electricity for the mobile equipment. All mobile equipment is placed at right angles to the line and may be moved at any time to facilitate service.

Types of Equipment

The lower portion of the tray assembly line, electrically heated, acts as a warm storage area for plate covers and other items used during tray service. Each mobile cart is entirely independent. It has its own temperature control and its own motor for refrigeration as well as a set of electrical outlets for plugging in other pieces of equipment.

Additional types of mobile equipment in use at St. Francis Hospital include the following:

1. *Two Hot Beverage Stations.* These units consist of an upper shelf, a worktop fitted to receive a coffeemaker, and a base with two drawers for storing coffee and tea. The base has a heated section to provide for storing individual coffee pots. These units are not connected directly to the tray assembly unit. A separate cart is used for serving coffee during tray assembly. The cart has two upper shelves to hold cups on saucers, and two electrically heated wells, and two heated drawers in its base. A single hot liquid station has the capacity necessary for 50 servings. Coffee and tea are poured into individual pots before tray assembly and the pots are placed in heated wells and drawers to be kept hot before and during tray service.

2. *Two Salad and Dessert Stations.* These units consist of a set of upper refrigerated shelves, a refrigerated worktop and a base divided into a refrigerated section on one side and wire rack shelves for receiving 12″ x 18″ pans, or for storing of paper goods.

3. *Two Cold Food Stations.* These work centers consist of a set of refrigerated upper shelves, a refrigerated cold pan depressed into the worktop and base which houses the compressor and a set of wire rack shelves for receiving 12″ x 18″ pans. The reserves for this unit are drawn from the adjacent refrigerator during loading intervals.

4. *Two Hot Food Stations.* Each of these units consist of a set of upper shelves, two thermostatically controlled food drawers in the base which keep the reserved food hot and two thermostatically controlled food wells in the working surface. One station serves the general diets; the other special diets.

5. *Soup and Cereal Cart.* This thermostatically controlled cart features five wells for holding and heating soup and cereal.

6. *Two Room Temperature Stations.* Each of these units consists of an upper shelf, a worktop to receive a rotary toaster, a base with four bread drawers and a set of wire rack shelves to receive 12″ x 18″ pans. Occasional special pastry items can be held in reserve on bakers racks adjacent to the stations.

7. *Dish Dispensers.* These pieces of mobile equipment hold dinner plates, cups, saucers, bread and butter plates, sauce dishes and soup bowls.

8. *Tray Delivery Carts.* The tray carts hold either 20 or 30 trays, according to the needs of the nursing stations. The interiors of the carts are fitted with removable wire racks which support the trays. An unloaded cart is completely open on the sides. As each tray is put in place, its raised side

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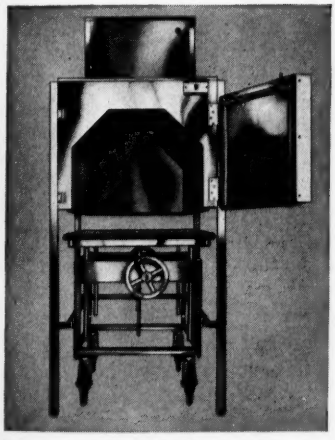

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The entire unit is portable and can be easily relocated. Plugs into any 110-V, 60-cycle, single-phase AC outlet.

SPECIFICATIONS

Model #600 Cooling Chamber:

Top and sides 22 ga. stainless steel sandwich construction with 2½" of expanded polystyrene insulation. Legs are 1½" steel square tubing satin chrome plated.

Refrigeration unit ⅓ horsepower Tecumseh. Thermostat is set at 40 deg. F. with a 3 deg. differential. The unit has an easy access panel, or—the entire unit can be removed. Power required, 110 V, 60-cycle, single-phase AC. Heavy duty vinyl refrigeration sealing gasket.

Overall dimensions of complete system 33" wide, 86" long and 77" high.

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(Price includes Model #600 Cooling Chamber and Model #625 Portable Stretcher.)

Model #625 Portable Stretcher:

Top 20 ga. stainless steel construction with 2½" expanded polystyrene insulation. Inside top area is recessed ¼" from outside edge. Stretcher top size, 27½" wide, 82¼" long.

Frame: 1" x 1" x ⅛" stainless steel angle with reinforcing stainless steel cross members and gussets.

Casters: 8" heavy-duty ball bearing swivel. Stretcher Adjustment: Maximum Height 39", Minimum Height 30".

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acts as the door for its own compartment.

9. *The Trays.* The trays are made of plastic, a standard 15" x 20" size having a 5" high front which is integrally molded with the body of the tray. At its lower front edge a finger gripping slot has been provided to facilitate removing the tray from the cart. The inside surface of the front has been designed with a tapered recessed slot which serves to hold the menu firmly in an upright position during all phases of the distribution cycle. The front of the tray has further been designed with a ¾" slant in its height toward the tray surface to allow access to the finger slot when the tray is in position in the cart. The trays are further provided with nesting pads to allow them to nest in such a manner that the bottom surfaces are held one inch away from the top surface allowing full circulation for air drying during the time the trays are in the tray transfer racks.

10. *The Tray Transfer Racks.* These are used for storage as well as for transferring empty trays from the dishwashing room to the tray loading units. The tray transfer racks with an indexed capacity of 60 trays are placed in position adjacent to the starting end of the tray loading units and 15 trays are placed on the cantilever lowerator.

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LEGCO 3G14 14" L.
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Can be used for salad, celery, olives
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A Typical Operation

After the various stations have been loaded with their assigned foods, the food is transferred on mobile carts from the walk-in refrigerator to the tray line and from the hot ranges to the pre-heated deep wells in the hot food stations. The plate covers are positioned to keep air off the food and are placed on the main plate as soon as all necessary foods are placed on the pre-heated plate. The proper lowerators are positioned and plugged into the carts, insuring hot dishes.

At the starting end of the tray loading unit, the operator places a card containing the patient's name, room number and his diet into the tray slot. The proper condiments, pre-wrapped silverware and the bread and butter plate with the proper bread rolls, crackers etc., are then placed on the tray and the tray is then moved on to the next station.

The cold food station is placed in proper position at a right angle to the tray assembly unit. The operator of this station loads cold salads, liquids and desserts while across from her the operator places the hot foods from the hot food station, covering the heated plate and food with a warm plate cover. The tray moves along to another operator who reads the card and loads proper hot soup or cereal depending upon which meal is being served. The cup and saucer are then placed on the tray in its proper place, and the operator reads the card to see which beverage is desired. Tea bags, etc., are placed on the tray, in individual packet form. The tray then reaches the checker who approves or corrects the final assembly. While the dietitian checks the entire tray the operator to the right of her places hot water or hot coffee on the tray.

After the tray is approved, it is placed in the mobile cart to be delivered to the patient along with the other 19 or 29 trays depending upon which floor or wing of the hospital is served. The loaded mobile cart is wheeled into the elevator which is held in reserve and brought to the proper floor and wing. The tray is then rolled to the last two stations, where its fur-

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ther requirements, if any, are fulfilled. It is then given a check and placed in position in the cart. (It is suggested that in the interests of maintaining as completely a "sealed" cart as possible the trays be placed into the cart filling each horizontal space in order starting with the top row). By now, of course, all of the stations are working simultaneously on the first lot of 15 trays at each tray loading unit. When the cart has been filled it is immediately taken to the elevator and sent on its way.

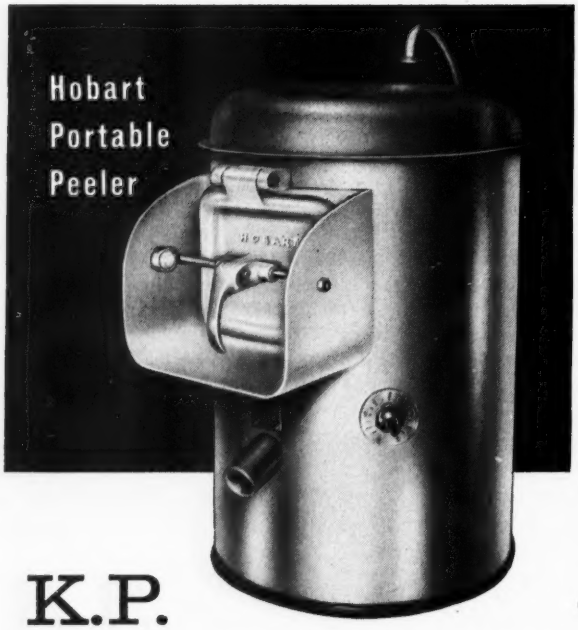
The cart has trays on each long side and as the cart is wheeled down the corridor a bank of trays faces the rooms on either side of the corridor. The distribution of 30 trays on a floor requires two handlers, one for each side of the cart. When all the trays have been distributed the cart is left at the end of its run to await the pickup of the trays for their return to the dishwashing room. A dietary employe then pushes them to the ground floor, where they are dismantled, china sorted, washed, rinsed, sterilized and returned to the proper movable lowerators.

All the activity around the tray line occurs simultaneously, each operator knowing his assignment and filling the needs of his particular station, setting it in place, plugging it in and bringing up the proper or appropriate lowerators. All units are disconnected when not in use. Two hundred patients have been served within 30-45 minutes. Surplus dairy products are returned to the adjacent refrigerator. The tray assembly line is wiped clean and is ready for the next meal.

A fat-free diet, as indicated by the code "F.F." in the diet indication block of the menu requires no different handling. The starter at the first station places the patients' menu card and silver in position in the usual way, and starts the tray down the slide. The various station operators have been previously instructed that such a diet block indication requires that jelly be provided rather than butter; that the coffee be served black; that the milk be skimmed; that the meat be from the fat-free pan. The salt-free diets have their proper coding appearing in the diet indication block and similar instructions have been given to the station operators. All coded modifications of the general diet are handled in the same manner. Special diets require no different handling by the starter; she merely places the original menu in place in the recess provided in the tray, loads the silverware, and starts the tray down the slide.

The unique tray and cart combination accords complete cleanliness. The tray is at once the door and shelf of the cart and is sterilized three times a day in the dishwasher; the stainless steel wire racks in the carts are removable and designed to fit the dishwasher.

In addition to the desire for maximum flexibility in the kitchen through installation and use of mobile equipment, the palatability of the food served is also a very important consideration. To insure palatability, all unnecessary handling of food must be eliminated so that the food reaches the patient in the shortest possible time. If food is kept in the main kitchen; if the hot food is kept as hot as practicable and served as quickly as possible, the food will reach the patient in its most palatable condition with coöperation from the nursing service. Saving time is of the essence in a food service system. ★



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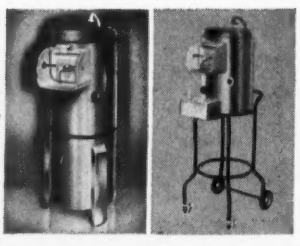

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LAW FORUM

Wm. A. Regan

(Begins on page 96)

make payment now, another hospital with a similar name might in the future seek to enforce this same obligation against him.

COURT: In refuting Mr. Felberg's claim that the subscription did not constitute a valid contract, the Sullivan County Court found that the pledge constituted an offer to enter into a contract which was accepted by the hospital by incurring liability in reliance on that promise. The hospital had commenced construction, solicited other pledges and donations, and obtained a mortgage of $130,000. Although receipt of the donation itself would constitute a benefit to the Liberty Maimonides Hospital, its actions in expending money and incurring obligations in reliance upon the pledge of Mr. Felberg and others would certainly be detrimental to the hospital should such pledges not be enforced.

The court paid little heed to the argument founded on the change in the hospital's name. Judge Lawrence H. Cooke stated that there could be no doubt that the Liberty Maimonides Hospital was a real party in interest in this suit. The name had indeed been changed by adding the word *Liberty* but there was no difficulty in identifying this hospital as being the same as the former Maimonides Hospital. No other hospital in the area bore even a slightly similar name and there was no danger that any other hospital would seek to enforce this same obligation against Mr. Felberg. Therefore, the court granted judgment to the hospital in full amount of the subscription.

COMMENT: In the not too distant past, courts were generally hesitant to grant relief to hospitals and other corporations of a charitable nature in their attempts to enforce subscriptions. This reluctance stemmed from the legal concept that to constitute a binding contractual obligation some benefit must flow to both parties. Since, ordinarily, the donor received nothing in return for his promise to contribute other than a spiritual uplift, the courts refused to enforce his pledge. Today, however, these same courts are looking to determine whether the donee has taken any action which might be construed as being done "in reliance on the donor's promise to contribute." If any such action has taken place or any liability incurred, the subscription will generally be held to constitute a binding obligation since a detriment has accrued to the hospital. As Judge Cooke stated in the Liberty Maimonides Hospital case, "The decisions of courts in this state and the trend of modern authority indicate a tendency to favor the enforcement of charitable subscriptions."

Hamlet vs. Troxler
United States Court of Appeals
4th Circuit 235F. 2d 335 (North Carolina)

Hospital Sued for Inadequate Lighting

DR. R. M. TROXLER owns and operates a hospital in Burlington, N.C. The plaintiff's daughter-in-law was a maternity patient at the hospital. Lizzie Hamlet arrived at the hospital to visit with her daughter-in-law

during her convalescence and to see her grandchild for the first time. It appeared that after spending approximately 40 minutes with the patient, Mrs. Hamlet asked the receptionist at the hospital for directions to the women's room. She was directed to "go to the hallway and take the right and go to the corner and open the first door to the right." Mrs. Hamlet, following the directions explicitly, came to a door which she opened. There was no light whatsoever within the doorway and Lizzie, believing that she saw a light switch within the space before her, took a step forward and fell down a flight of stairs. There was *no top landing* and subsequent examination revealed that the doors had *no markings* and that there was *no light burning*. Mrs. Hamlet brought legal action to recover for injuries which she suffered in the fall.

At the trial it was Mrs. Hamlet's contention that she had followed the hospital employe's directions and that she had no knowledge of what was within the doorway. She claimed that she had every right to step into the room since she believed it to be the women's room and expected the floor to be there.

COURT: The United States Court of Appeals, 4th Circuit, affirmed Mrs. Hamlet's contention and found the hospital liable for failing to adequately protect visitors by not properly marking entrances and by failing to maintain sufficient lighting. District Court Judge Barksdale stated that there is an implied invitation to visit patients and, since it is reasonable to expect such visitors to spend considerable time at the hospital, toilet facilities must be provided. There is, also, an obligation to the public to properly designate one room from another. Since Mrs. Hamlet had every right to rely upon the directions given her by a hospital employe, the court held that she was not contributorily negligent in entering the room and, therefore, was entitled to recover for her injuries.

COMMENT: This case illustrates the point that it is of utmost importance that safe premises be maintained within the hospital. No matter how modern and bright a hospital may be, all doors and other facilities, which may be used by the general public, should be appropriately marked. This decision is one of the rare instances of recent origin in which a hospital has been criticized for improper lighting. Adequate illumination is not only desirable for the purpose of carrying out daily hospital procedures but is also required by the courts as a matter of safety for the general public.

Comess vs. Norfolk General Hospital Inc.
Supreme Court of Appeals of Virginia
52 S.E. 2d 125

Visitor Not Warned Of Hazards on Grounds

THIS CASE arose out of the discontinuance of an entranceway to the Norfolk General Hospital, Norfolk, Va. A large circular drive led to the entrance of the main building of Norfolk Hospital. A concrete walk led from the eastern end of the driveway to the maternity wing of the hospital. There was another concrete path which led from the street, across the the walk to the maternity wing, to a doorway at the eastern corner of the main building. This doorway had been discon-

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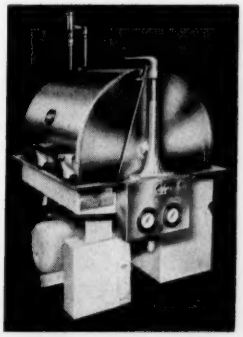

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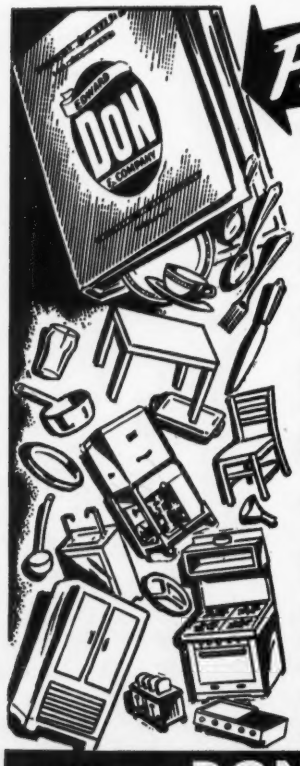

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tinued as an entrance to the hospital and the doorknob had been removed from the door. It was, however, kept ajar on occasion and used by employes of the hospital. There was no sign or notice that the door was not to be used. One evening Naomi Comess arrived on the hospital grounds to visit her husband, a patient whose room was located near the abandoned entranceway. She entered the walk which led to the maternity wing and, upon reaching the point where the two concrete walks crossed, she turned right and proceeded toward the door near her husband's room. *That portion of the grounds was not well lighted* and, after walking a few feet, Mrs. Comess tripped and fell over an iron chain which was attached to two iron posts about 16 inches from the ground. The chain had been placed in position by the hospital in order to prevent use of this door as an entrance.

Mrs. Comess subsequently sued the hospital for damages as a result of injuries sustained when she fell. She argued that the doorway had previously been used by her as an entrance and that there was no sign or other evidence to the effect that this entrance was no longer to be used by the public.

COURT: The trial court directed a verdict for the hospital. The Supreme Court of Appeals of Virginia reversed the lower court's decision and ruled in favor of the hospital visitor. The opinion written by Justice Miller, stated: "The fact that the walk and door had previously served as an approach and public entrance to the hospital and had been so used by the plaintiff was sufficient to justify the conclusion that an implied invitation for her to so use them continued until reasonable notice had been adopted and given to notify those visiting the hospital and accustomed to using that means of entrance that it had been discontinued for public use."

The court further found that the chain and post device was a real hazard and danger and that a visitor to the hospital was not required to be on the lookout for dangers which were not open and obvious. In the words of the court: "The owner must give notice or warning of an unsafe condition which is known to him and is unknown to the invitee, but notice is not required when the dangerous condition is open and obvious to a person who is exercising reasonable care for his own safety. In the absence of knowledge or warning of danger, the invitee is not required to be on the lookout for it because he may assume that the premises are reasonably safe for his visit."

COMMENT: While the primary responsibility of any hospital is the care and treatment of patients, most courts today recognize an additional duty of care in providing for the safety and protection of visitors. This duty is not confined within the walls of the building itself, but extends throughout the grounds and roadways. Self-protection requires hospitals to give notice to the public of any condition which may prove hazardous whether it be a hole dug as part of a construction project, a small fence to protect the hospital lawn, or any other possible source of danger. The growing influx of traffic to and through hospitals throughout the country at a time when construction, expansion and renovation have been proceeding at a record pace has increased these problems. This increase should be accompanied by a growing awareness on the part of hospital administrators and personnel to possible dangerous conditions within and without the building. ★

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Medical Library Services

Part 1—References

by JOSEPHINE HERRMANN
Public Health Librarian
Los Angeles City Health Dept.

THE CENTRAL CORE, the sole aim, the only reason for the existence of a library is the service it gives. If a library does not give good service, the library fails, no matter how large the budget, how wise the book selection, how excellent the cataloging. All other work that goes on, from administration to book lettering, is preparatory or contributory.

The services a library renders are two: reference work and circulation. All other services, although frequently mentioned as separate entities, are in reality specializations or refinements of either reference work or circulation, sometimes both. Bibliography, for instance, is a specialization of reference work when a list of references is made for an individual in answer to a specific question, and it is a specialization of circulation when it is used as publicity to advertise new books received among patrons. As reference work is the more important of these two services for medical libraries, it shall be treated first.

These days it seems to have become more fashionable to use such terms as "information retrieval" and "research," rather than "reference." In a certain sense, librarians do "retrieve" information through a knowledge of the literature and indexes. Research, of course, is heard more frequently in medical libraries, but even this term has greater validity in the laboratory than in the library. The term "reference" is still the term most frequently used by librarians.

Reference work for the medical librarian requires certain basic attitudes. In the first place, the type of person seeking assistance is not likely to be willing to do his own searching. Nor is he apt to take kindly to any suggestion that he do so. Undoubtedly he feels, and with considerable justification, that this is what the librarian has been hired to do. The librarian in the medical library, therefore, must be willing to do all of the work, down to page and line if necessary.

Occasionally, a patron may be willing, even anxious, to do his own reference work. In this case, if he does not know how to go about it, the librarian should teach him. But she should not begin to teach unless requested to do so. The medical library is not a nursing school library, where teaching the use of references is an integral part of the program.

The librarian also must always keep in mind that accuracy and speed in reference work are of vital importance. She must recognize when a question is vital or merely casual. She must learn to distinguish between the patron who asks for *all* the material and means *some* and the patron who says *all* and means *all,* between the one who wants information for a definite purpose and the one with a momentary interest who does not want to be bothered if the finding will take too long. In short, she must learn when to pursue relentlessly and when to drop the matter. This, of course, will take practice and experience.

Every book and periodical in a library at one time or another has a reference use, but there is also that group of books which are known specifically as reference tools. Of these, there are different types that are particularly important—dictionaries, di-

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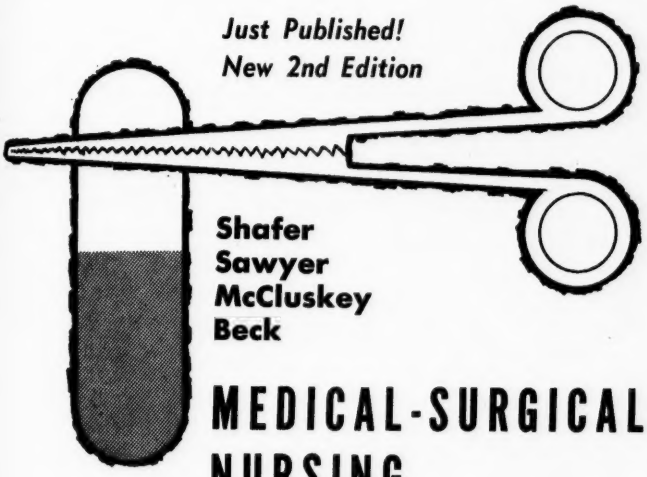

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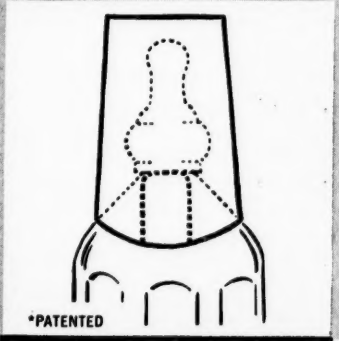

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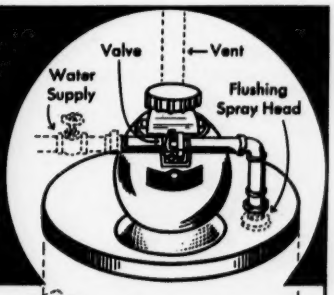

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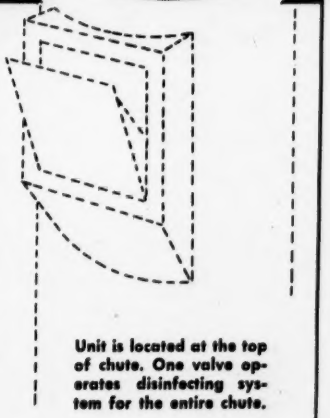

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Dictionaries & Directories

1. *Dictionaries.* There are three outstanding medical dictionaries of which the latest edition should always be purchased. These are *Dorland's American Illustrated Dictionary* published by Saunders, *New Gould Medical Dictionary* published by Blakiston, and *Stedman's Medical Dictionary* published by Williams and Wilkins. There are, of course, many others, and additional purchases will depend on the size of the library and its budget. Whether or not foreign language dictionaries should be secured will depend on the competence of the staff and patrons in foreign languages. In many libraries, especially smaller ones, the purchase of bilingual dictionaries is probably more practical, and of these there should be purchased one each of the following languages: Latin, German, French, Spanish. Dictionaries for other languages should be purchased as dictated by local need.

2. *Directories.* The most important directory in the medical field is the American Medical Association's *American Medical Directory.* This is a *must* for every medical library. Almost as important is the *Directory of Medical Specialists,* published by the Advisory Board for Medical Specialties. It is also necessary to have the directory issued by the local state board of medical examiners and the directory of members put out by the local medical society.

The use of medical directories is something that must be patiently learned. Most of them are arranged by locality, with a name index. The physician's biographical data is given by symbols under his name, and the meaning of each symbol must be looked up in the proper key at the front of the book. The process of deciphering the data is therefore an annoyingly tedious one.

Many medical organizations have directories of their members, and there are also many small specialized directories of clinics, nursing homes, dentists, optometrists, etc. It is a good thing to have as many directories on hand as possible without spending a disproportionate amount of the library budget. Actually, many of these may be obtained free. All directories should be filed together in a special location. It is also wise to keep pamphlet directories with the larger directories rather than in the pamphlet file; otherwise, they may never be used. It should also be borne in mind that most directories of individuals also contain much other information on medical schools, hospitals, societies, etc.

Drugs, Biologicals & Laws

3. *Encyclopedias.* Every medical library should have at least one medical encyclopedia. There are several good ones: Tice's *Practice of Medicine* (Prior), *Cyclopedia of Medicine, Surgery and Specialties* (Davis), *Oxford Medicine* (Oxford University Press), and *Nelson's New Loose-leaf Medicine* (Nelson). All are looseleaf with amendment service; some have yearbooks in addition. There is a yearly service charge for the amendment and yearbook services.

4. *Pharmacopoeias.* With the great increase in new drugs and biologicals, pharmacopoeias are becoming more and more indispensible. It is of great importance that the library have the latest obtainable and those with the most extensive coverage. A pharmacopoeia is a dictionary or encyclopedia of drugs and biologicals in alphabetical arrangement by name of drug. Each entry briefly lists chemical composition, usage, dosage, forms in which sold, etc. The two most important are the *U.S. Dispensatory* with its exhaustive coverage and the *Modern Drug Encyclopedia* with its smaller coverage but more helpful indexing under trade names. Its quarterly supplements containing a cumulative index also supply the more current source of information. In this connection it is a good idea to keep a file of the drug advertisements received from pharmaceutical houses. They are the most current of all sources. Moreover, such advertisements will sometimes contain bibliographical references for further research. For complete discussion of these two titles and for listing of other important pharmacopoeias refer to Janet Doe's *Medical Library Handbook.*

5. *Books of Laws.* Every medical library should have the following books of law: 1. Those volumes of the United States Code containing the laws regarding public health and food and drugs; 2. the health and safety code of the state; 3. the regulations implementing the state health code; 4. professional regulations regarding the professions served by the library, and 5. the municipal code of the local city. Codes are usually indexed; regulations

ASSIGNMENT: ROOM 4

The sick man lay in a dimension of no age.
His eyes, alone alive, explored the ceiling for an inadvertent crack.
No smile, no twitch, not even a reaction slow as a petal folding on the night
Marked him aware that she had drawn the light of morning through his window.
She was prepared to be the arms and legs he'd lost somewhere in the murk of his tumor-ridden brain.
She fed the mouth, no longer capable of threading syllables into words.
And as she turned her human driftwood, rubbing out the burden of his bones upon his flesh,
She wondered if a log thinks.
You know, she said, on Sunday I bicycled into the country
And all autum lay heaped and pungent on a wall—a single wall of stone beside the road, sheltered by a barn.
It held its load of color as if painted there and dried to permanency by the sun.
(She guided fresh sheets under and over as she talked.)
I picked some purple asters and a stalk or two of goldenrod; I'll bring you some tomorrow.
Her hands were watered wood, numb suddenly beneath his tears, the only words he knew.
Outside the window, a lone red leaf held the sky in its punched-out eyes, a spider thread on the sill its one horizon.

Margaret H. Berger, R.N.

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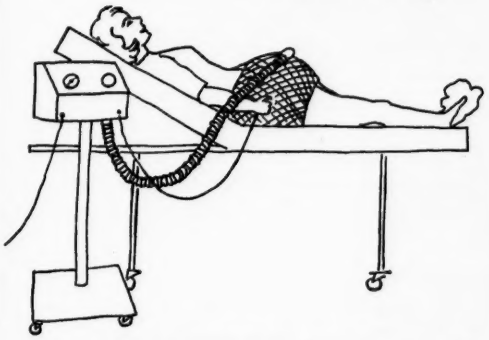

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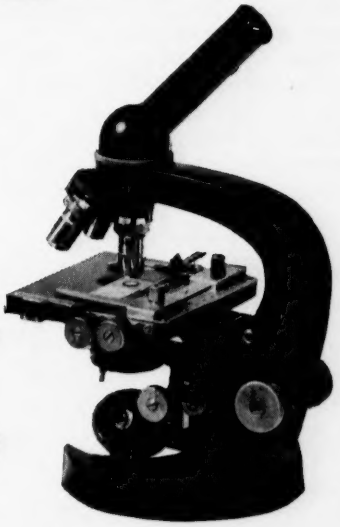

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are not, but usually have a helpful table of contents.

6. *Statistical Books.* Statistical questions in medical libraries have largely to do with birth, illness and death. Statistics are broken down in many ways—by race, sex, locality, rate per varying numbers of population, etc. To answer statistical questions there are certain basic titles the library must have.

The principal source of statistical information for the United States is the National Office of Vital Statistics which is a branch of the U. S. Public Health Service. The two most important titles it publishes are the yearly volumes called *Vital Statistics of the United States* and the irregular series entitled *Vital Statistics—Special Reports.* For morbidity statistics the library should be on the mailing list to receive the Office's *Morbidity and Mortality Weekly Report.* For statistical information on foreign countries the library should have the *United Nation's Demographic Yearbook* which gives figures on births and deaths by major causes. The library should also have on file the World Health Organization's *Weekly Epidemological Record* and its *Epidemiological and Vital Statistics Report.* The former is a weekly tabulation of morbidity and mortality statistics concerning selected communicable diseases of world-wide importance. The second reference is monthly and contains detailed studies of individual diseases. The library should also maintain a file of the *Statistical Bulletin* of the Metropolitan Life Insurance Company, and should have in its collection such titles as Louis I. Dublin's *Length of Life* and *Facts of Life from Birth to Death.*

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Statistical Problems

Several things must be remembered in the use of statistical materials. Figures of national and international scope are usually some two years behind because of the tremendous amount of work involved in gathering and compiling the information. On the state and local level, it may be possible to secure more recent information from the annual reports of state, county and city health departments. Of recent years, however, many departments have so popularized their reports that they are of little use in reference work due to lack of sufficient statistical detail. Also, the promptness with which these reports are issued varies greatly from one jurisdiction to another. Many states, counties, and cities issue weekly, monthly, or quarterly statistical sheets giving morbidity figures for reportable diseases. If the library's patrons are statistics-minded it might be wise to have some of these on file.

Morbidity statistics present a much greater problem than either birth or death statistics. It is only possible to secure statistics for reportable diseases, and none of the chronic diseases are included in the category. Prevalence of diseases such as diabetes and cancer can only be approximated from special studies appearing from time to time in publications like the Metropolitan Life Insurance Company's *Statistical Bulletin,* the *Public Health Reports* of the U.S. Public Health Service, and the *American Journal of Public Health.*

7. *Indexes.* In a medical library the bulk of reference work centers on the use of periodicals. Therefore, periodical indexes are of the greatest importance. Although there are a number of small specialized indexes such

as the *Hospital Index* and *Unlisted Drugs,* there are two major indexes which cover the entire field: the *Quarterly Cumulative Index Medicus,* published by the American Medical Association, and *Current List of Medical Literature,* published by the National Library of Medicine. Those wishing information on the other indexes should consult Doe's *Medical Library Handbook.*

Medical Indexes

The *Quarterly Cumulative Index Medicus* is neither quarterly nor cumulative. In its early years the index did appear quarterly, but the first and third paper-bound, interim issues which were later cumulated into the semi-annual bound volumes were subsequently dropped. However, the name was never changed. Eventually, due to publication difficulties, current indexing could no longer be maintained, and was several years behind when the index was discontinued with Volume 60, 1956. Nevertheless it is an excellent index for the years covered. Each volume lists material published during a half year. About 1,500 titles are indexed, both in English and in foreign languages. It is a dictionary arrangement containing authors and subjects in one alphabet. Books published during the period are cited in two separate lists, at the beginning of the volume, one classified and one alphabetical. The index is easy to use, comprehensive and, though discontinued, still vital for medical reference.

The *Current List of Medical Literature,* a monthly list, has also ceased publication. Material on the average ran about six months behind, although those titles available at publication would be included in the issue. Consequently, some journals appearing are only two months old while others may be dated the previous year. The arrangement of the index also is awkward. The first part of each issue contains listing of tables of contents by journal and issue. The articles so listed are given a chronological numbering. The second half consists of an author index and a subject index to the first half. After each entry in the subject and author indexes is a number or numbers referring back to the chronological listings in the contents section. Since bibliographic information appears only in the contents section, each and every reference must be looked up twice, first in the index and then, guided by the numbers listed there, in the contents section. Monthly indexes were consolidated into one index at the end of each six month period.

Both of these indexes have since been replaced by the *Index Medicus* (New Series), Volume 1, January 1960, published by the National Library of Medicine. This new indexing tool, which offers improved coverage, will be cumulated annually by the American Medical Association.

Many medical librarians have felt it would be of a great boon to medical reference work if a short selective index of approximately one hundred of the most important periodicals in English could be published promptly, indexing material not more than two to three weeks old. This is the type of indexing done by the Wilson Company in other fields. Such a selective index would be helpful because many times the finding of just one article on a subject will lead to others through its bibliography. Then, too, such a selective index would fill in at least

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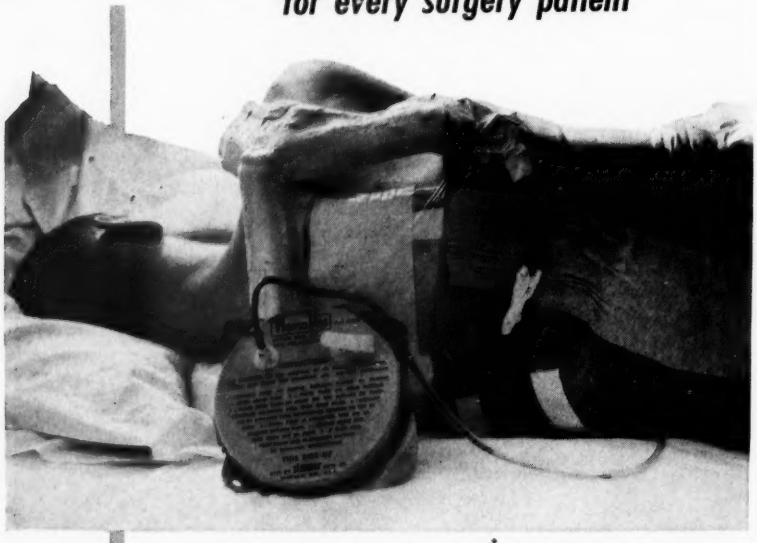
partially the time lag before the appearance of the comprehensive indexes. It is the complete lack of indexing of current material that makes the "most recent information" type of request so difficult to fulfill.

8. *Union Lists.* A union list is a composite list of all the periodicals in the libraries in a *certain area.* The periodicals are listed alphabetically and under each title appear the names of the libraries having the title, indicating their holdings. If kept up-to-date there is nothing so wonderful as a union list, telling exactly which library to contact in order to borrow a particular periodical. However, since union lists in specialized fields must be made by librarians on their own time and since the work is both tedious and time consuming, nor is their preparation commercially profitable, union lists are only rarely up-to-date. Still, even though those available may be old, they can be very useful in giving clues as to the holdings of various libraries. Remember, however, that the older the list, the more important it is to check holdings before using location information in bibliographies prepared for patrons. Sometimes this checking can be done locally by phone, but, if location information cannot be checked, it would be better simply to prepare a short explanatory paragraph listing probable places where the greater portion of the information sought might be found.

Almost all libraries prepare a list of the periodicals to which they subscribe. A library should obtain as many of these as possible to supplement its union lists. A short bibliography of union lists may be found in Doe's *Medical Library Handbook* under the heading "Lists of Periodicals." One of interest to librarians in Southern California is that published in 1951 by the Southern California Chapter of the Special Libraries Association entitled *Union List of Periodicals and Other Serial Publications in the Medical and Biological Science Libraries of the Greater Los Angeles Area.*

HemoVac provides Happier, Faster recovery for every surgery patient



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General Reference Tools

Every medical library, and any special library for that matter, also should have a small collection of diversified general reference tools. This is a real necessity, since patrons invariably will ask many questions other than those having to do specifically with medicine, nursing or a specialty. To them a library is a library, medical or not, and the medical librarian should be able to answer at least some of these general unrelated questions. As a general reference collection the following are suggested as a basic check list:

1. A *Bible* and a *Concordance.* 2. Good encyclopedia, preferably the *Americana* because of its somewhat greater emphasis on scientific subjects. 3. *Webster's Unabridged Dictionary.* 4. *The World Almanac* (latest edition). 5. A dictionary of abbreviations. 6. A dictionary of synonyms and antonyms. 7. A book of quotations, perhaps *Bartlett's Familiar Quotations.* 8. *The United States Postal Guide.* 9. *The United States Government Organization Manual.* 10. A book of etiquette. 11. A secretary's handbook, preferably Hutchinson's. 12. Biographical dictionaries, such as, *Who's Who, Who's Who in America,* a local *Who's Who,* and *American Men of Science,* 10th edition, *The Physical and Biological Sciences,* Volumes 1 and 2 (Volumes 3 and 4 not yet published).

(To be concluded)

NEW SUPPLIES AND EQUIPMENT

Aerosol Dust Treatment Available

GRIPDUST, a new, step-saving aerosol dust mop and dust cloth treatment, has been developed by The C. B. Dolge Co., Westport, Conn. *Gripdust* dries instantly on the mop or cloth—there is no diluting, soaking or waiting for the material to dry. Without delay, the mop is ready for dustless sweeping on vertical surfaces and relatively small horizontal surfaces such as desk tops.

The Gripdust-treated mop or cloth picks up dust as if magnetized. *Gripdust* has a refreshing aroma. It contains a special detergent ingredient which facilitates laundering of mops and cloths.

The C. B. Dolge Co.
Westport, Conn.

(Circle No. 1 on request card for further details.)

Amtico Tile Now Available

THE COMPLETE NEW AMTICO Vinyl Asbestos and Amtico Asphalt flooring lines have created tremendous interest in the floor covering market, according to the Amtico Flooring Division of American Biltrite Rubber Co., Trenton, N.J. Amtico Vinyl Asbestos and Amtico Asphalt Tile are manufactured to the same exacting standards as those governing the color, design and quality of all Amtico Floorings. Important features of the new Vinyl Asbestos line include exceptional wearability, beautiful appearance, which is easy to maintain, and resistance to oils, fats, greases, alkalis, acids, detergents and other chemicals. Installation for industrial, commercial or home use may be over wood or cement floors above-grade, on-grade or below-grade.

American Biltrite Rubber Co.
Perrine Ave.
Trenton 2, N.J.

(Circle No. 2 on request card for further details.)

Parke-Davis Announces Product for Epilepsy Control

PARKE-DAVIS & CO. has announced the availability of a new anticonvulsant product which is particularly useful in the treatment of petit mal epilepsy. Called *Zarontin* (ethosuximide, Parke-Davis), the new product "has shown in clinical trials a very promising degree of effectiveness against petit mal attacks. *Zarontin* has been considered by a number of authorities to offer more promise than any other compound tested during the past 10 years," according to the company.

Zarontin, which can be used alone or in combination with other anticonvulsants, is another in an "extensive" line of Parke-Davis products for use in controlling epilepsy. The firm first introduced Dilantin (diphenylhydantoin, Parke-Davis) in 1935 and later research developed Milontin (phensuximide, Parke-Davis) in 1953 and Celongtin (methsuximide, Parke-Davis) in 1957 for different types of epilepsy. The new chemical is the latest in the succinimide series of anticonvulsants and is described chemically as alpha-ethyl, alpha-methyl succinimide.

Parke, Davis & Co.
Detroit 32, Mich.

(Circle No. 3 on request card for further details.)

Hobart Offers New Dishwasher

A NEW 18-foot flight type dishwasher, featuring a specially designed six-foot center section for washing and rinsing operations, has been introduced by The Hobart Manufacturing Co., Troy, Ohio. The four-stage machine, Model FT-18, is one of the first multiple-tank dishwashing machines ever built with a center section less than eight feet long. Built of heavy gauge stainless steel, the machine also has a six-foot leading and scrapping section and a six-foot drying and unloading extension. A flight link conveyor, which moves at an adjustable five to seven feet per minute, is constructed of stainless steel with Delrin acetal resin links. Delrin-tipped stainless steel links also are available. The machine is recommended for restaurant, hotel, school, hospital and institutional kitchens serving up to 1,350 persons per meal.

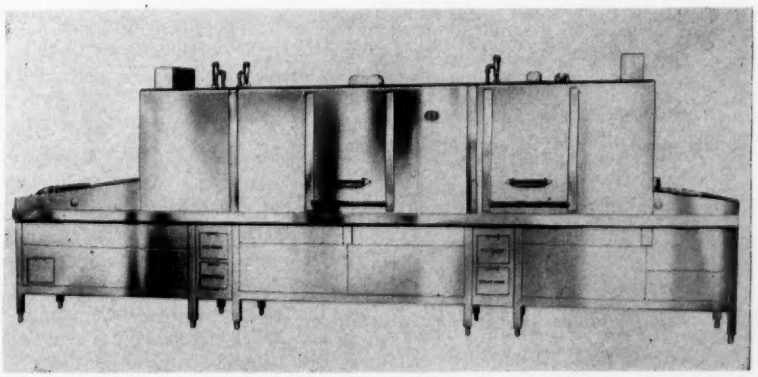
Hobart Mfg. Co.
Troy, Ohio

(Circle No. 4 on request card for further details.)

Colson Corp. Develops New Wheels

DYNATHANE WHEELS developed after two years of extensive laboratory and field tests have been introduced by The Colson Corp., Chicago, Ill., manufacturers of a complete line of industrial and institutional material handling equipment. During the test period, Colson engineers found that dynathane performed better than other standard materials. According to findings, dynathane was proved to last longer, resist wear to an outstanding degree and provide a superior load capacity.

In addition to dynathane's durability and strength characteristics, this new poly-urethane material offers maximum rollability even after hours of remaining in a set position, and a closer



Hobart Dishwasher

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tread-to-wheel bonding. Unlike conventional urethane wheel construction, Colson has designed its dynathane tread around an aluminum wheel containing a specifically designed ridged center for permanent bonding strength.

Adding to the qualities of its dynathane, Colson's aluminum wheel offers a greater strength to weight ratio of any wheel now marketed. The aluminum wheel also has been proved to be highly resistant to corrosion, contains a high tensile strength, and offers a 30 per cent weight reduction compared to iron core.

The Colson Corp.
7 S. Dearborn St.
Chicago, Ill.

(Circle No. 5 on request card for further details.)

Gypsum Plastering Recommendations Available

THE NEW Gypsum Association plastering recommendations are offered in an eight-page "Performance of Lath and Plaster" brochure. It is a factual report of the Gypsum Association's seven-year research project, and its goal of improving plaster performance on suspended ceilings. The First Part — *Research Report* — describes variables of lath and plaster tested and conclusions reached. The second part—*Recommendations*—outlines new and important changes in recommended lath and plaster specifications, design and usage—how to select systems in terms of expected performance. Copies of the brochure are available, at no cost.

The Gypsum Association
203 North Wells St.
Chicago 6, Ill.

(Circle No. 6 on request card for further details.)

Picker Introduces New Equipment

A SYSTEM described as the first that records simultaneously the sound and fluoroscopic image of body functions and plays them back in perfect synchronization has been introduced by Picker X-Ray Corp., White Plains, N.Y. The system, called a "Syncrotaper," uses a tape recorder which can be synchronized with the cineradiography attachment on any image amplifier that uses a Picker Weinberg-Watson projector.

Studies have shown the recorder to be of special value in the diagnosis of diseases affecting the heart and vocal systems. For example, a physician who uses an image amplifier system to record on film the movements of the vocal chords in speech can have the sounds themselves synchronized with the film records. Thus, a partial paralysis of the chords can be shown with the faulty sounds they produce. No special attachments are needed to use the recorder, and it can be hung in any convenient place on the amplifier.

Picker X-ray Corp.
25 S. Broadway
White Plains, N.Y.

(Circle No. 7 on request card for further details.)

Airkem Inc. Introduces Odor Counteractant

AIRKEM INC. has introduced the Cavalier II, a newly-designed dispenser for Solidaire—the convenient new odor counteractant available in three scientifically balanced formulations. The Cavalier II treats up to 93 cubic feet of air per minute and is specially designed for commercial and institutional applications. The new unit completely eliminates odors of tobacco smoke, occupancy, food, liquor, fresh paint and other objectionable odors by dispersing Airkem Solidaire in vapor form. The Cavalier II is designed to treat the average-size office, room or work area. One unit will treat up to 1,000 square feet; for larger areas, two or more units may be used.

Airkem Cavalier II

Airkem, Inc.
241 East 44th St.
New York 17, N.Y.

(Circle No. 8 on request card for further details.)

New Dual-Hite Bed Offered by Simmons

LUXURIOUS COMFORT is introduced to the field of hospital beds in a revolutionary new *Dual-Hite* Bed by The

House of Simmons. Simple in principle, the motorized spring enables patients to change from reclining position with ease, and with a flip of the contoured control switch, lower the spring height for getting out of bed. High enough for the convenience of doctors' and nurses' treatment of patients, this new bed is conceived at the perfect level to allow patients to reach the floor easily when adjusted for getting out of bed. Its motion is smooth and not too sudden, offering the ultimate in ease and safety.

The House of Simmons
Contract Div.
Merchandise Mart
Chicago 54, Ill.

(Circle No. 9 on request card for further details.)

Sterilon Introduces Disposable Scalpel

A NEW LINE of sterile disposable surgical scalpels has been introduced by the Sterilon Corp., Buffalo, N.Y. Made of plastic with a high tempered blade affixed, the scalpel is featherweight and perfectly balanced. A formfitting grip allows complete freedom of surgical dexterity. A Swedish steel blade insures extra sharpness and rigidity with highly sensitive balance.

The Sterilon Scalpel is supplied sterile-wrapped in a double transparent envelope to permit complete asepsis upon entering a sterile field. Its readiness for instant use anywhere makes the scalpel ideal for emergency surgery, first aid, suture removal, pathology, office surgical procedures and house calls.

Sterilon Corp.
500 Northland Ave.
Buffalo 11, N.Y.

(Circle No. 10 on request card for further details.)

Polymer Floor Polish Perfected by Hillyard

THE HILLYARD CHEMICAL CO. of St. Joseph, Mo., has announced the results of field testing a new product tradenamed *Improved Poly-Kote.* The clear, non-yellowing, synthetic, water emulsion coating produces a long lasting high gloss finish. *Poly-Kote* can be buffed after cleaning to restore original lustre. Traffic lanes can be patched and blended in without recoating the entire floor. Exceptional slip-resistance is another *Poly-Kote* feature. Tracked in water or water spillage presents no hazard because the surface actually becomes more "non-skid" when wet with water. Built-in resistance to soil, water

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St. Joseph, Mo.

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Angelica Uniform Co. Offers Free Booklet

ANGELICA UNIFORM CO. is offering a free booklet, "Guide to Uniforms of Synthetic Fabrics," to help in the selection of uniforms for hospital employes. The booklet lists and discusses the various types of synthetics and blended fabrics, with their properties and characteristics — resistance to stain, acid, and mildew, comparative strength, opacity, reaction to fire and retention of static electricity.

For those hospitals operating their own laundry, the booklet gives instructions for adapting present equipment to handle synthetics. Copies of the booklet are available through Angelica's sales representatives, or by writing to:

Angelica Uniform Co.
1427 Olive St.
St. Louis 3, Mo.

(Circle No. 12 on request card for further details.)

Portion Control White Oven Ware Introduced

JOHN SEXTON & CO., Chicago, Ill., has developed a new type of portion control oven ware especially for the volume feeding industry. Known as Sexton Therm Cooking Ware, this new oven china is double glazed and all white, outside as well as inside, except for an edging of color around the rim. The three color edgings offered—maroon, green and charcoal—are designed to harmonize with any existing china pattern or color.

The double glazing of Sexton Therm Cooking Ware prevents crazing and discoloration and makes for easier washing and sterilizing. The white exterior makes each piece as attractive on the table as it is functional in the kitchen. A wide range of shapes and sizes are available for all individual service needs.

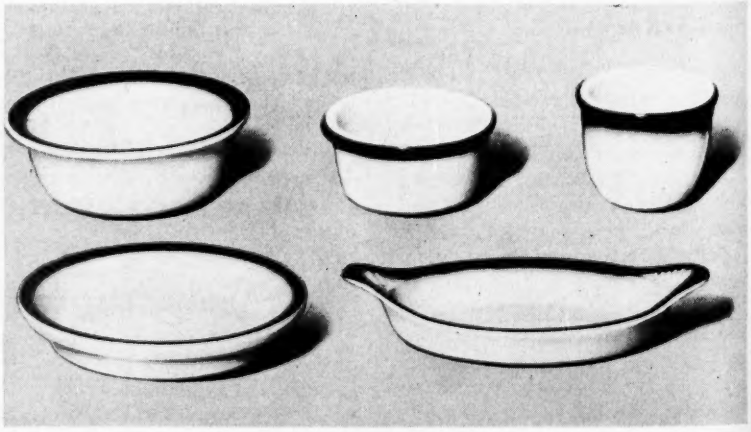
John Sexton & Co.
P.O. Box J S
Chicago 90, Ill.

(Circle No. 13 on request card for further details.)

N.C.G. Sterile Tread Sanitizes Wheels & Shoes

MINIMIZING the danger of transporting bacteria by foot and equipment traffic in hospital corridors is the aim of a new unit designed to disinfect shoes and wheels of rolling equipment without interfering with normal work routines. Testing of the unit for four months at a Philadelphia hospital showed that it reduced bacterial count by at least 70 per cent, it was reported by the National Cylinder Gas Div. of Chemetron Corp. which distributes it. The Maysco Sterile-Tread is mounted on the floor at the entrances to operating suites, nurseries and delivery rooms. Units are custom-made, but generally are 12 feet long and practically as wide as the corridors or entries in which they are installed.

The Sterile-Tread consists of a pan which contains a thin plastic sponge



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MEDICAL CASE RECORD ANALYSIS
by Sr. M. Servatia, S.S.M.
336 pgs. Bound—Cloth

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by G. FitzGibbon, S.J.
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(Recruitment Folder)
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CATHOLIC HOSPITAL ASS'N
1438 So. Grand Blvd., St. Louis, Mo.

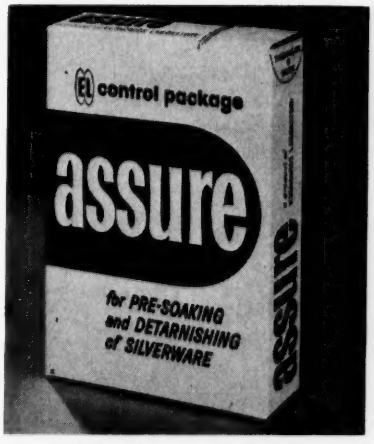
material and is covered with canvas. The sponge is saturated with a disinfectant solution. It has sufficient resiliency to permit an imprint, which forces the disinfectant to penetrate the canvas and contact the bottom and sides of shoe soles and wheels of equipment. The easily replaced canvas cover is stretched from four directions by a series of springs which keep it wrinkle-free and permit easy passage of wheeled equipment. The Sterile-Tread is one inch in height and is fitted at each end with a non-skid sill that slopes to floor level.

National Cylinder Gas Div.
Chemetron Corp.
840 N. Michigan Ave.
Chicago 11, Ill.

(Circle No. 14 on request card for further details.)

Detarnisher Developed by Economics Laboratory, Inc.

ECONOMICS LABORATORY, INC., New York, N.Y., has developed new *Assure*, a product designed to keep silver and



Economics Lab. Assure

stainless tableware sparkling bright. *Assure* is double acting—it softens all crusted food soil and at the same time, detarnishes the silver. It has balanced alkalinity which neutralizes food acids to prevent pitting and corrosion of stainless steel surfaces and it halts corrosion already present. By presoaking in *Assure* prior to washing, silver and stainless tableware will always be bright and new looking.

Economics Laboratory, Inc.
250 Park Ave.
New York 17, N.Y.

(Circle No. 15 on request card for further details.)

Koenigkramer Co. Offers New Mechanical Chair

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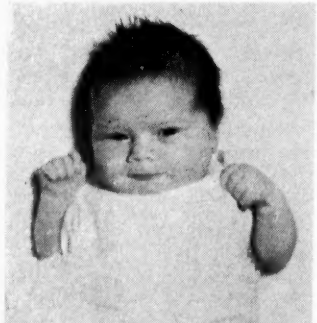

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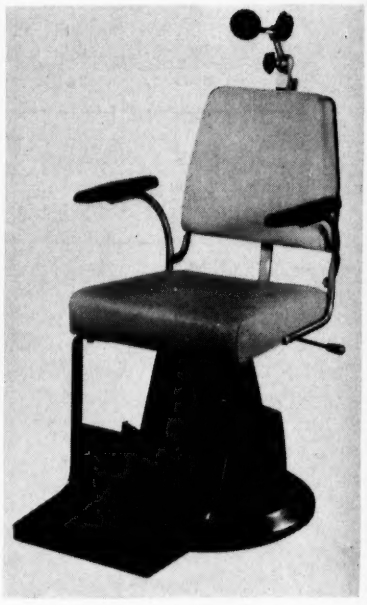


Reliance Chair

F. & F. Koenogkramer Co., Cincinnati, Ohio. Known as the No. 660 Motor Hydraulic E.E.N.T. Chair, the "Reliance" is exceptionally trim and professional, usually easy to operate, fool-proof and extremely comfortable.

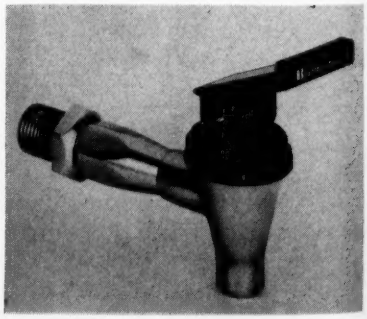
A special feature is its factory-sealed hydraulic mechanism. A single pedal on both sides of the chair raises and lowers the seat. Upholstering is in genuine leather (standard), or Naugahyde (optional). The base is finished in baked enamel. The floor to seat height is 20", the over-all height 39½".

F. & F. Koenigkramer Co.
96 Caldwell Dr.
Cincinnati 16, Ohio

(Circle No. 16 on request card for further details.)

Barnstead Self-closing Faucet Available

BARNSTEAD Still and Sterilizer Co. has developed a new faucet for maintain-



Barnstead Faucet

ing purity of distilled water at point of use with a special self-closing and non-self-closing feature. A double functioning handle closes the faucet on release or keeps it open in set position.

This self-closing feature prevents any loss of distilled water. The faucet has simple positive action and will not leak or drip. It is tincoated inside and has an inert silicone rubber plunger. Maintenance is simple because the plunger can be replaced easily and without need of tools. This faucet is ideal for existing distilled water distribution systems, and for distilled and demineralized water storage tanks.

Barnstead Still and Sterilizer Co.
126 Lanesville Terrace
Boston 31, Mass.

(Circle No. 17 on request card for further details.)

New Sterilization Indicators Developed

INTRODUCTION of the first Ethylene Oxide Sterilization Indicators for hospital and commercial processors was recently announced by the Aseptic-Thermo Indicator Co., North Hollywood, Calif. With the advent of gas sterilization, an urgent need arose for an indicator of gas sterilization processing. Aseptic-Thermo's Research Department was assigned the project and A.T.I.'s new E.O. Indicator is the result of their research.

Simple to use, the latest A.T.I. indicators perform a critical service. Although ethylene oxide is a highly penetrative gas, the penetration varies according to the type of wrapping or packing, and the size of the packages. Formerly there was nothing available to give visible evidence that the necessary gas penetration had been achieved. This evidence is now provided by the new Ethylene Oxide Indicators which are to be attached to or enclosed with each article that goes into the E.O. sterilizer. The bright yellow circular discs change color to a distinctive blue after exposure to E.O. processing. Inadequate processing is evidenced by the indicator's remaining yellow or becoming greenish-yellow, instead of completing its color change to blue.

Aseptic-Thermo Indicator Co.
11471 Vanowen St.
North Hollywood, Calif.

(Circle No. 18 on request card for further details.)

1961 C.H.A. Convention

Detroit ..... June 12-15

NATIONAL NEWS

(Begins on page 132)

four-year scholarships by the institution in proportion to the student's need, with no student being eligible for more than $2,000 a year."

Additionally, there would be a cost of education grant to the institution of $1,000, for each federal scholarship so that the program does not work further financial injury upon medical and dental schools.

The President also acknowledged that similar problems exist in the nursing field, and stated that proposals will be submitted to the Congress which will embody recommendations somewhat similar to those for medical and dental students.

Considerable emphasis was placed upon the necessity for improving the health of children. The message recommended that a National Institute of Child Health and Human Development be established in the National Institutes of Health. Other recommendations included additional federal assistance for vocational rehabilitation and medical research. ★

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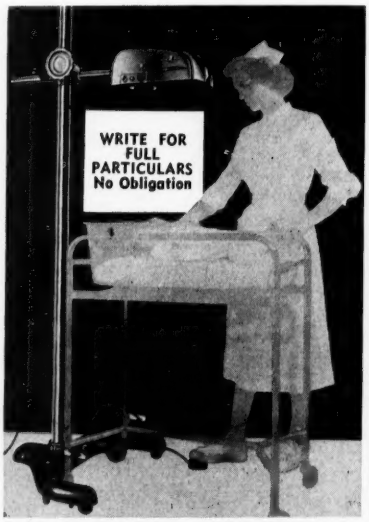

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